

NEOTECH FTC WEBCAST
>> LOOK TO THE RIGHT FRONT
SIDEWALK AND THAT WILL BE OUR
RALLYING POINT.
EVERYBODY WILL RALLY BY FLOORS
AND CUE WILL NEED TO CHECK IN
WITH SOMEONE IN THE CONFERENCE
CENTER, ME OR KRISTIN SO YOU CAN
LOOK FOR US.
IN THE EVENT IT IS SAFER TO
REMAIN INSIDE THE BUILDING, YOU
WILL BE TOLD WHERE TO GO.
AND IF YOU SPOT ANY SUSPICIOUS
ACTIVITY PLEASE ALERT SECURITY.
THIS EVENT MAY BE PHOTOGRAPHED,
VIDEOTAPED, WEBCAST OR OTHERWISE
RECORDED BY PARTICIPATING IN
THIS EVENT YOU ARE AGREEING THAT
YOUR IMAGE AND ANYTHING YOU SAY
OTHER SUBMIT MAY BE POSTED
INDEFINITELY AT FTC.GOV OR ONE
OF THE SOCIAL MEDIA SITES.
FOR ANYBODY THAT WASN'T TO
SUBMIT QUESTIONS WE WILL BE
TAKING QUESTION CARDS WHICH ARE
AVAILABLE TO THE HALLWAY,
IMMEDIATELY OUTSIDE OF THE
CONFERENCE ROOM IF YOU HAVEN'T
GOTTEN ONE YET.
IF YOU FILL OUT YOUR CARD, RAISE
YOUR HAND AND SOMEONE WILL COME
GET IT FROM YOU.
FOR THOSE OF YOU PARTICIPATING
VIA THE WEB SITE YOU CAN E-MAIL
TO MOBILEDEVICETRACKING@FTC.GOV
OR TWEET IT TO #FTCMOBILE.
WE WILL DO OUR BEST TO ANSWER AS
MANY AS WE CAN.
WE WILL GET STARTED TODAY, FIRST
WITH A PRESENTATION BY ASHKAN,
WHO FOCUSES ON PRIVACY, SECURITY
AND ECONOMICS.
HE HAS EXPOSED PRACTICES
DESIGNED TO CIRCUMVENT CONSUMER
PRACTICE CHOICES AND SERVED IN
THE PRIMARY TECHNICAL CONSULTANT
ON "THE WALL STREET JOURNAL"
"WHAT THEY KNOW" INVESTIGATIVE
SERIES.
PLEASE WELCOME ASHTAN.
PLEASE WELCOME ASHKAN.
>> HELLO EVERYONE.
GLAD YOU MADE IT THIS RAINY DAY.
I WILL QUICKLY GO OVER HOW SOME
OF THIS TECHNOLOGY WORKS AND LET
PEOPLE JUMP ON IN THE PANEL.
IT WILL BE A HIGH LEVEL OVERVIEW
BUT FEEL FREE TO ASK ANY
QUESTIONS FOR VERIFICATIONS.
PANEL IS ON MOBILE DEVICE
TRACKING.
I'M GOING TO SPEAK ABOUT
LOCATION DEVICES AND DEVICE

AWARE LOCATIONS AND THEN TOUCH ON THE BENEFITS AND THE CONCERNS FROM A TECHNICAL PERSPECTIVE. SO WE'RE TALKING ABOUT MOBILE PHONES GENERALLY, SMARTPHONES THAN TRADITIONAL PHONES, OR FEATURE PHONES, STILL FALL INTO THIS SPACE, AND WE'RE KIND OF PROBABLY ALL AWARE OF LOCATION AWARE DEVICES NOW SO MOST OF OUR SHORT PHONES ALLOW TO US MAP OUR LOCATION OR FIND RESTAURANTS. THE DEVICE ITSELF COLLECTS THE LOCATION FROM A VARIETY OF SOURCES WHICH GPS ATLANTA ON THE DEVICE THAT TALKS TO POSITION ITSELF ON THE GLOBE BASED ON SATELLITES IN THE SKY. VIA LOCAL Wi Fi SIGNALS THAT ALLOW IT TO TRIANGULATE AND QUERY AGAINST GOOGLE AND FROM THE CELL PROVIDERS LIKE AT&T AND VERIZON WHICH ALLOW THE DEVICES TO TRIANGULATE THEIR DEVICES AND LOOK AT WHAT RESTAURANTS ARE IN MY AREA. THIS IS A QUICK OVERVIEW THAT I PROVIDED TO THE SENATE PANEL TWO YEARS AGO BUT IT GENERALLY DESCRIBES ALL OF THE WAY THE DEVICE COLLECTS LOCATION AND PITTS IT ON TO THE DEVICE. WHAT THE FTC, WE HAVE HAVE LOFT REVIEWS ON WHAT APPS COLLECT AND WHAT APPS COLLECT LOTION LOCATION. THIS MAY BE OLD NEWS TO YOU BUT OFTENTIMES AN APP MAY COLLECT DATA TO FIND OUT WHERE A RESTAURANT IS AND THEN SHARE IT WITH THE USER TO PROVIDE ADVERTISING. LOCATION AGAIN I WILL, IT CAN MEAN A NUMBER OF THINGS. GPS LOCATION CAN BE, YOU KNOW, DOWN TO A HUNDRED FEET OR DEPENDING ON THE TECHNOLOGY USED. Wi Fi IS OFTEN ACCURATE SO A CITY BLOCK LEVEL. GENERALLY I THINK THE FTC HAS A NICE DEFINITION AND THE COPA GUIDELINES DESCRIBE THE LOCATION DOWN TO A CITY INTERSECTION. GENERALLY WE MEAN WHERE YOU ARE RELATIVE TO KIND OF A MAP. AND ONE TECHNOLOGY I DIDN'T TALK ABOUT IS A NEWER TECHNOLOGY CALL BLUETOOTH LOW ENERGY WHICH ISN'T FLASHY AND THIS IS ESSENTIALLY ANOTHER WAY FOR A DEVICE TO DETERMINE ITS LOCATION BASED ON LOW ENERGY BLUETOOTH SIGNALS

THAT ARE STORED OR YOU COULD PURCHASE AND WHEN YOUR DEVICE ENCOUNTERS THE BEACON YOU CAN SET IT TO DO SOMETHING. ONE OF THE COMMON USES, STORES ARE ALLOWING WE CONS TO GIVE YOU AN ALERT WHEN YOU PASS THAT BY SYSTEM 20 SAY HEY THIS ITEM IS ON SALE OR HERE IS A COUPON. IT WORKS VIA THE BLUETOOTH ANTENNA IN YOUR DEVICE MONITORING WHAT OTHER BLUETOOTH DEVICES ARE AROUND IT AND ONCE THAT IS DETECTED IT WILL SIGNAL A PARTICULAR WEB SITE OR ACTION ON YOUR PHONE. AND THEY'RE OFTEN VERY ACCURATE DOWN TO 5 METERS OR LESS AND IT DEPENDS ON THE SPECIFIC MAKE OF THE DEVICE AND THEY'RE OFTEN -- THEY ARE STARTING TO BE ROLLED OUT IN STORES. THE OTHER THING THAT IS COMMONLY BEING ROLLED OUT IN STORES OR A CLASS OF STORE IS DEVICE AWARE STORES OR DEVICE AWARE LOCATIONS. THIS IS AN EXAMPLE FROM A CISCO INTERFACE ABOUT A PARTICULAR INTERFACE FOR A MALL TO ALLOW THE MALL TO IDENTIFY WHERE USERS ARE TRAVELING OR WHAT STORES THEY'RE TRAVELING TO AND WHAT DISPLAYS THEY'RE LOOKING AT. THIS WOULD BE AN EXAMPLE OF A DEVICE AWARE LOCATION. MANY OF US GO TO SWEET GREEN FOR SALAD. SWEET GREEN IS A DEVICE AWARE LOCATION AND PARTNERS WITH NOMI TO SEE WHAT DEVICES COME TO THE STORE, HOW LONG THEY STAND IN FRONT OF THE REGISTER, KIND OF WHAT DEVICES MIGHT BE REPEAT CUSTOMERS FOR EXAMPLE. SO IF YOU HAVE ONE TO ONE SWEET GREEN AND COME BACK LATER TO ANOTHER SWEET GREEN. AS I SAID, WHEN THE DEVICE -- WHEN YOUR SMARTPHONE TRIES TO DETERMINE ITS LOCATION IT'S ACTUALLY A 22-WAY SIGNAL SO OFTEN BLUETOOTH AND CELL PHONE TOWER LOCATIONS ARE TWO-WAY, BOTH DEVICES RECEIVING AS WELL AS THE DEVICE TRANSMITTING AND BY TRANSMITTING THE SIGNAL IS THAT THE RECEIVER RECEIVES, ESSENTIALLY ALLOW THEM TO TRIANGULATE THE LOCATION ON THE DWIGHT. ANOTHER WAY TO LOOK@YOUR DEVICE IS A SERIES OF TRANSMITTING AN

10 AS.

45 TYPICAL SMARTPHONE HAS A BLUETOOTH, A Wi Fi, GPS ANTENNA AND THEN A GSM, THE ANTENNA USED TO SPEAK TO AT&T OR T-MOBILE OR WHOEVER YOUR PROVIDER IS.

EACH ANTENNA EMITS SIGNALS AND THE PROVIDER, FOR EXAMPLE, IS ABLE TO TRIANGULATE THE LOANS OF THE DEVICE.

HERE VERIZON AND AT&T, BASED ON ITS NETWORK OF DRILL TOWERS CAN TELL BY TOWER YOU'RE CLOSEST TO OR TRIANGULATE A MORE ACCURATE POSITION BASED ON THE DIFFERENCE BETWEEN TOWERS AND THIS IS BASED ON YOUR PHONE BEING ON AND SENDING WE CONS TO THE NETWORK SAYING, HEY, I NEED A CELL PHONE SIGNAL OR WHAT SIGNAL IS NEAR ME AND THIS CAN HAPPEN JUST BY THE DEVICE BEING ON.

SIMILARLY THERE ARE COMPANIES LIKE PATH INTELLIGENCE THAT INTERCEPT THOSE SAME SIGNALS THAT VERIZON OR AT&T RECEIVES TO ALSO PERFORM TRIANGULATION OF YOUR DEVICE SO THIS IS -- THE ANTENNA IN THE TOP RIGHT IS A DEVICE INTELLIGENCE CELLS THAT THEY CAN PLACE IN THEIR MALL AND AS YOUR PHONE IS BEACONING TO AT&T OR T-MOBILE, THESE DEVICES ALSO PICK UP THE PHONE'S IDENTIFIER AND ITS APPROXIMATE LOCATION IN THE MALL.

BLEUTH HAPPENS THE -- BLUETOOTH HAPPENS THE SAME WAY.

AS YOUR DEVICE IS COMMUNICATING ON A Wi Fi SIGNAL THE DEVICE IS TRANSMITTING BASICALLY A BEACON OR FRAME LOOKING AND TRYING TO IDENTIFY NEARBY NETWORKS.

THERE ARE COMPANIES, I THINK SOME HERE TODAY THAT ALSO INTERCEPT THOSE WE CONS AND SIGNALS AND PROVIDE GEO LOCATION SERVICES BASED ON YOUR Wi Fi EMIN ADDITIONS AND THIS IS HAPPEN WHEN A DEVICE ON THE NETWORK, IT CAN HAPPEN BY THE NETWORK YOU ANTICIPATE ON.

IF YOU GO TO A HOTSPOT THE HOTSPOT MAY HAVE THIS BUILT IN OR IT CAN BE INDEPENDENT AND YOU CAN GO TO STARBUCKS AND THEY MAY HAVE HAD A STARBUCKS Wi Fi NETWORK AND MRS. MAY FEATURE ONE OF THESE DEVICES TO TRIANGULATE YOUR DEVICE BASED ON YOUR LOCATION TO THE STARBUCKS NETWORK.

THERE'S A VARIETY OF METHODS.

I JUST TOUCHED ON A COUPLE. YOUR PHONE MAY HAVE OTHER ANTENNAS LIKE RFID AND THIS IS A SCHEMA FROM AN OPEN RESEARCH PAPER ABOUT LED LIGHTING EMANATIONS SO FROM YOUR PHONE'S LED OR THE FIELD IT EMITS. THE MORE DEVELOPED ONES THAT I KNOW ABOUT ARE THE CELL TOWER BASED AND Wi Fi BASED LOCATION TECHNOLOGIES AS WELL AS THE I BEACON TECHNOLOGIES. THE WAY THESE THINGS -- THE QUESTION IS, HOW DO YOU IDENTIFY A USER OR WHAT IS A IDENTIFICATION IN THIS CASE, ARE THEY TRACKING YOU BY NAME, HOW DO THEY IDENTIFY THE SAME DEVICE TO WHERE IT COMES BACK TO THE STORE? AND THE KEY TO REMEMBER IS EACH OF THESE ANTENNAS THAT WE TALKED ABOUT, THE Wi Fi ANTENNA, THE GSM ANTENNA, THE BLUETOOTH, THEY ALL HAVE A GLOBALLY UNIQUE IDENTIFICATION, KIND OF LIKE YOUR SOCIAL SECURITY NUMBER BUT IT'S SPECIFIC TO THE CHIP SET ON YOUR PHONE, RIGHT, SO IT'S DESIGNED TO BE GLOBALLY UNIQUE SO THAT NO OTHER PERSON OR DEVICE HAS THAT SAME NUMBER AND IT ALLOWS THEM TO UNIQUELY IDENTIFY THAT DEVICE. SO IT MAY NOT REFER TO THE DEVICE BY NAME BUT IT WILL SAY, FOR EXAMPLE, YOU CAN'T SERIALIZED IF IT'S AN iPhone, APPLE OR ANDROID DEVICE FROM THIS INFORMATION AS WELL AS IF IT'S THE SAME DEVICE THAT YOU SAW YESTERDAY. AND ESSENTIALLY, THE DEVICE, WHILE IT DOESN'T REVEAL THE OWNER'S INFORMATION DIRECTLY, IT KIND OF HELPS TO INDICATE WHAT THE LOCATION HABITS OF A PARTICULAR DEVICE ARE, SO YOU CAN SAY THIS DEVICE TRAVELS THROUGH THESE SET OF CELL TOWERS AT A GIVEN SET OF TIME OR IT HAS COME THROUGH BEFORE YESTERDAY OR WENT THROUGH A DIFFERENT STORE LAST WEEK AND IT REFERS TO THE DEVICE UNIQUE ID. ONE THING TO REMEMBER THE SERIAL NUMBERS ARE PERSISTENT TO THE DEVICE AND HARD WIRE NUMBERS AND THERE'S VERY LITTLE USERS CAN DO TO CHANGE THEM. THERE WAS A BILL PROPOSED TO MAKE IT ILLEGAL TO CLAIMS THESE SUCH THAT WHEN PHONES ARE STOLEN

THEY COULD BE BLACKLIST OF THE
BASED ON THIS INFORMATION.
AS LONG AS YOU HAVE THE DEVICE
THIS INFORMATION IS PERSISTENT
TO THE DEVICE SO IT'S A PRETTY
RELIABLE OR ROBUST IDENTIFIER.
AND OFTENTIMES YOU MIGHT
HEAR OF THE DEVICE IDENTIFIER AS
BEING HASHED.

HASHING IS A MATHEMATICAL
ALGORITHM YOU CAN APPLY TO THE
IDENTIFIER.

SO THE TOP LINE WITH E8 THAT'S A
MAC ADDRESS FOR ONE OF MY
DEVICES.

AND THE BOTTOM -- THE NUMBERS
STARTING 48 IS THE HASHED
VERSION OF THAT IDENTIFIER.

AND THE CUE WITH HASHING IS THAT
IT OFFICE GATES THE --

OBFUSCATES THE NUMBER AND IT'S
HARD TO GO BACK TO THE ORIGIN
MAC ADDRESS BUT YOU HAVE THE
SAME OUTCOME.

WHEN YOU HASH WITH THE SAME
ALGORITHM, YOU WILL GET THE SAME
OUTCOME.

SO WHAT IS KEY HERE, AGAIN, THE
HASH IDENTIFY, IT'S NOT
REVEALING THE ACTUAL
IDENTIFIER, IT'S ANOTHER
GLOBALLY UNIQUE IDENTIFIER JUST
AS ROBUST AS THE Wi Fi ADDRESS.
THERE WAS A GREAT BLOG POST BY
ED FELLTON LAST YEAR ABOUT
WHETHER HARVING MAKES DATA
ANONYMOUS AND HE GOES INTO GRATE
DETAIL ON HOW THIS WORK AND HOW
HASHING DOESN'T MAKE IT
ANONYMOUS BUT IT TRANSFORMS IT
FROM ONE IDENTIFIER TO THE OTHER
AND IT'S STILL A ROBUST
IDENTIFIER.

AND THERE WAS A RESPONSE AND
EUCLID IS ONE OF THE COMPANIES
THAT DOES THIS AND IT'S -- IT'S
DIFFICULT TO IDENTIFY AN
INDIVIDUAL BUT IN RESPONSE TO A
SERIES OF LETTERS FROM SENATOR
AL FRANKEN THEY RESPONDED YES IF
LAW ENFORCEMENT PROVIDED THEM
WITH A DEVICE, THEY COULD
PERHAPS TELL WHAT OTHER
LOCATIONS THAT DEVICE HAD BEEN
SO YOU'RE ABLE TO GET TO THE
INFORMATION EVEN IF INFORMATION
IS HARVARD.

SO IT'S NOT POSITIVE MUS IN THE
ACCEPTANCE THAT IT DOESN'T REFER
TO A PERSON BY NAME.

IT'S HASHED IN THAT IT MIGHT
OBFUSCATE THE ORIGIN MACK
ADDRESS BUT YOU CAN STILL

PROVIDE HISTORIC LOCATION BASED ON SOME OF THESE IDENTIFIERS EVEN IF THEY'RE HASHED AND OFTEN IT'S USED -- WHAT ARE THE BENEFITS OF THE TECHNOLOGIES? ONE IS COUPONS. EVERYONE LOVES COUPONS OR YOU MAY BE ABLE TO SEE A DEAL HAPPENING NEAR YOU OR MAYBE FIND THE HOAX OF YOUR SEAT. THERE'S A GREAT USE OF THIS FOR THE CONSUMER SIDE AND THE RETAIL SIDE. THE RETAILERS CAN, FOR EXAMPLE, USE THE TECHNOLOGY TO IDENTIFY WHAT STORES ARE POPULAR, WHERE USE REHEARSE GOING, WHETHER THEY ARE REPEAT CUSTOMERS. THEY CAN USE THE INFORMATION TO LOOK AT QUEUES AND HOW LONG PEOPLE ARE STANDING IN LINE. BUT THERE'S A NUMBER OF CONCERNS WITH THE TECHNOLOGY WHICH I'M SURE THE PANEL WILL GET INTO BUT JUST TO TOUCH ON THEM BRIEFLY, THIS INFORMATION CAN BE SENSITIVE IN THAT IT CAN PROVIDE DEMOGRAPHIC INFORMATION ON THE PEOPLE'S AGE. THERE'S NO WAY TO TELL IF IT'S A KID'S DEVICE OR AN ADULT'S DEVICE. BASED ON THE TYPE OF OTHER LOCATIONS THAT YOU HAVE BEEN GOING TO, YOU MIGHT BE ABLE TO INFER DEMOGRAPHIC INFORMATION LIKE LIFESTYLE THERE. THIS IS A TURNSTILE THAT PROVIDES DEMOGRAPHIC INTEREST IN THE BOTTOM RIGHT ABOUT, YOU KNOW, NIGHTCLUBS AND MUSIC AND PARTICULAR INTERESTS SO YOU CAN INFER KIND OF INTEREST BASED ON PEOPLE'S LOCATION BEHAVIORS AS WELL. THE OTHER KIND OF -- THIS IS VERIZON'S ANALYTICS, VERIZON IS A CARRIER AND THEY PROVIDE I THINK IT'S CALLED PRECISION INSIGHTS AND THIS IS A TALE OF PEOPLE'S ACTIVITIES IN ONE CITY IN AGGREGATE OF HOW PEOPLE SPEND THEIR DAY, WHETHER THEY GO TO -- HAVE HOT DOGS IN THE MORNING OR GO TO THE TOP FIVE RESTAURANTS THEY GO TO AND THIS IS USING AGGREGATE ANALYTICS BUT IT PROVIDES A BRINGING PICTURE OF PEOPLE'S DAY SO THEY CAN TRACK FOR EXAMPLE 2. MOBILE OR VERIZON KNOW HOW YOU SPENT YOUR ENTIRE DAY IN TERMS THE LOCATION YOU WENT AND THAT

MIGHT ABOUT CONCERN TO PEOPLE.
AND THE GENERAL CONCERNS ARE,
LIKE MOST OTHER TRACKING
DEBATES, IT'S ESSENTIALLY THAT
THE COLLECTION IS INVISIBLE,
PASSIVE, PEOPLE NEED TO OPT OUT
VERSUS OPT IN.
SO HOW DIFFICULT TO O OPT OUT,
JEWEL'S GROUP PROVIDED AN OPT
OUT SYSTEM THAT LET'S YOU, FOR
EXAMPLE, PROVIDE YOUR MAC
ADDRESS TO THIS TO NETWORK TO
CREATE A BLACKLIST OF PEOPLE WHO
WANT NO NOT BE TRACKED.
THAT'S KIND OF MOST DIFFICULT
FOR MOST USERS, I SUSPECT, TO GO
AND FIND THEIR MAC ADDRESS.
THERE'S GOING TO BE ITERATIONS
ON THIS.
ONE IDEA I HAD WAS TO SET UP AN
OPT OUT Wi Fi NETWORK AT EACH
LOCATION SO A USER CAN JUST JOIN
THAT NETWORK FOR A BRIEF INSTANT
AND THEY CAN CAPTURE THE Wi Fi
ADDRESS SO YOU BRIEFLY JOIN THE
OPT OUT ADDRESS IT AND KICKS YOU
OFF THE NETWORK.
THAT COULD BE DONE IN A FEW
MINUTES BY SETH OR MYSELF USING
OPEN SOURCE SOFTWARE THAT WOULD
BE AN EASIER WAY.
BUT USERS HAVE TO KNOW IT'S
HAPPENING.
IT'S THE TYPICAL KIND OF
TRACKING DEBATE.
WE TOUCHED ON HOW THE
IDENTIFIERS MAY NOT BE ANONYMOUS
SO THEY'RE PSEUDO-ANONYMOUS AND
ONE OF THE BIG ISSUES IS THAT
THE RETENTION PERIOD OF THE
PSEUDO-NONE EMULSION INFORMATION
IS UNCLEAR SO THAT WHETHER LAW
ENFORCEMENT OR DIVORCE ATTORNEYS
OR WHOEVER ELSE CAN GET THIS
INFORMATION MIGHT ABOUT CONCERN.
CONVERGENCE IS ONE OF THE AREAS
THAT KIND OF SENSITIVE WHERE
THIS IS TURNSTILE -- SORRY, THIS
IS RETAIL NEXT AND THEY, FOR
EXAMPLE, COMBINE YOUR LOCATION
HISTORY, Wi Fi HISTORY, POINT
OF SALE ACTIVITY, PAYMENT CARDS,
ETC. TO PROVIDE KIND OF A MORE
DONE CREATE PICTURE OF THE USER
AND THURES EXPERIENCE SO AS YOU
COMBINE LOCATION WITH OTHER
ACTIVITY LIKE TRACKING OR THINGS
WHERE YOU MIGHT -- SORRY, LIKE
PURCHASES WHERE YOU MIGHT
IDENTIFY YOURSELF OR USE WITH A
CREDIT CARD OR SIGN UP FOR A
MAILING LIST, PEOPLE WILL FIND
THAT THE LOCATION INFORMATION

COMBINED WITH INFORMATION ABOUT THEM MIGHT ALSO BE SENSITIVE. THIS IS JUST AN EXAMPLE. I JUST RAN THE OTHER NIGHT WHERE CVS PROVIDES A MOBILE APP TO LET YOU FIND COUPONS AND KIND OF FIND YOUR STORE BUT IT TRANSMITS YOUR HASH IDENTIFIER. THAT'S MY HASH IDENTIFIER THAT WE SAW EARLIER IN THE SHA-56 ALGORITHM. OF THE APP ITSELF SENDS HOME OR PHONES HOME YOUR MAC ADDRESS TO CVS AND APPLE IS TRYING TO CURVE THIS BEHAVIOR BUT ON THE ANDROID PLATFORM THIS STILL HAMS. AND THIS IS WHERE MY SIGNING IN TO THE APP CAN BE COMBINED WITH OTHER ANALYTICS TO GET A BETTER PICTURE OF WHAT WHAM AND WHAT WHAT STORES I GO TO. THAT'S THE GENERAL LANDSCAPE OF HOW THIS STUFF WORKS. I WOULD BE HAPPY TO TAKE SOME QUESTIONS. >> IF ANYBODY IN THE AUDIENCE HAS QUESTIONS, FEEL FREE TO FILL OUT YOUR QUESTION CARDS AND SOMEBODY WILL GET THAT FROM YOU AND WE WILL ASK THOSE. JUST TO GET STARTED AND I HAD A QUESTION. YOU TALKED ABOUT THE DIFFERENT WAYS COMPANIES CAN DO THIS AND YOU TALKED ABOUT THE Wi Fi AND GSM INTERSECTION. CAN YOU GIVE US AN ENTER SITE ON WHY A COP WOULD USE ONE OVER THE OTHER. >> GSM LOCATION ANALYTICS USUALLY CAN BE COLLECTED BY YOUR CARRIER SO THE AT&T AND VERIZON AS WELL AS COMPANIES LIKE PATH INTELLIGENCE THAT HAVE THESE ANTENNAS, THEY'RE ESSENTIALLY COLLECTION DEVICES THAT INTERCEPT YOUR COMMUNICATION TO YOUR CARRIER, AND THIS IS A PRETTY ROBUST WAY TO TRACK USERS BECAUSE OFTENTIMES YOUR PHONE IS ALWAYS CONNECTED TO YOUR PROVIDER SO UNLIKE Wi Fi WE CONS YOU MAY NOT HAVE YOUR Wi Fi ANTENNA ON OR BE USING IT WHEREAS YOUR GSM OFTEN SENDS A HEART BEAT KIND OF EVERY -- IT XENSD ON THE CARRIER BUT PRETTY REGULAR INTERVAL TO PING THE TOWER. SO IT BECOMES A PRETTY ROBUST WAY TO TRACK INDIVIDUALS. ADDITIONALLY, THE GSM PROTOCOL REQUIRES ONE OF THE IDENTIFIERS

TO -- THERE'S A PERSISTENT IDENTIFIER BUT THERE'S A SECOND IDENTIFIER WHICH IS OFTEN THE ONE USED TO TRACK INDIVIDUALS CALLED THE TIMSI AND THESE INTEGRATE BUT THEY CAN BE PERSISTENT UP TO 30 DAYS AND IT PROVIDES A GOOD PICTURE ON A PERSON'S BEHAVIOR HABITS OVER 30 DAYS AND WHETHER THEY COME TO THE SAME STORE TORE NOT.

>> SO IT'S A GOOD SIGNAL BUT IN THE SENSE MOST PEOPLE DON'T TURN OFF THEIR PHONES.

>> AND WHAT ABOUT BLUETOOTH
>> I WOULD ARGUE NOT AS MANY PEOPLE LEAVE THEIR BLUETOOTH ANTENNAS ON.

I WOULD ARGUE IN THE GRAND SCHEME OF ANTENNA YOU HAVE THE GSM LOCKHEED-MARTIN ALWAYS ON, AND THEN Wi Fi AND IF IT IS ON IT IS BEACONING AND NOT CONNECTED TO A NETWORK.

AND BLUETOOTH, THE DISTANCE IS LOWER BUT IT PROVIDES DIFFERENCE IN THAT THE RESOLUTION IS MUCH MORE FINE GRAIN, YOU CAN SAY WHERE IT'SAL I'M NEXT TO YOU VERSUS THE OTHER END OF THE TABLE PRETTY ACCURATELY SO BLUETOOTH HAS --

>> DOES IT GO IN THAT ORDER, GSM AND Wi Fi AND BLUETOOTH IN TERMS OF HOW POPULAR EACH IS RIGHT NOW.

>> I KNOW OF MORE COMPANIES THAT DOING Wi Fi BASED PARTIALLY BECAUSE, I THINK IT'S POTENTIALLY CHEAPER, POTENTIALLY MORE -- I THINK THE LAW A LITTLE BIT CLEARER ON THE INTERCEPTION OF Wi Fi SIGNAL VERSUS GSM SIGNAL BUT I THINK THE PANEL COULD SPEAK TO THAT.

>> IT LOOKS LIKE WE HAVE ABOUT A MINUTE LEFT SO I THINK WE HAVE TIME FOR ONE QUESTION THAT WE HAVE GOTTEN FROM THE AUDIENCE, SO SOMEBODY HAS ASKED: THEY ASSUME THERE ARE MULTIPLE HASHING ALGORITHMS AND TO AGGREGATE DATA ACROSS MULTIPLE LOCATIONS THEY ASSUME ALL LOCATIONS WOULD NEED TO HASH THE SAME WAY OR USE THE SAME ANNAL ANALYTIC FORM.

IS THAT TRUE?

>> THAT'S TRUE.

SO THE HASHING -- A HASH IS ESSENTIALLY A TRANSFORM. YOU COULD HASH MY NAME BY ADDING ONE CHARACTER TO THE END OF MY

NAME OR CHANGING MY NAME BY ONE LETTER AND EVERYONE WOULD HAVE TO AGREE ON THAT HASH FOR THEM TO BE ABLE TO SYNCHRONIZE DATA. ONE THING THAT IS MISSED IN THE HASHING DEBATES OFTENTIMES THE TECHNOLOGY IS THERE AND WHILE IT'S DIFFICULT TO TAKE A HASHED IDENTIFIER AND GO BACK TO MY MAC ADDRESS YOU CAN ENUMERATE THE LIST OF ALL MAC ADDRESSES AND ALL HASHES UNDER A SET OF HASHES.

THIS IS CALLED LIKING A RAINBOW TABLE AND I'M SURE PEOPLE HAVE BEEN -- THIS IS HOW HACKERS WILL DETERMINE YOUR PASSWORD.

IT'S DIFFICULT TO GO BACK FROM A HASH BUT YOU CAN SAY, YOU KNOW, MY NAME ALWAYS ENDS UP IN THIS HASH, PRECOMPUTED AHEAD OF TIME AND THEY WILL LOOK FOR A MATCH.

SO YES TO THE QUESTION, RETAILERS WOULD HAVE BEEN NEED TO USE THE SAME HASHING ALGORITHM TO CHECK ACROSS DIFFERENT RETAIL POINTS.

THE 3507 LARP ARE SHAW, SHAW-256, SOME INDI-5 AND EVEN IF THEY DON'T IT IS POSSIBLE TO REVERSE ENGINEER WHAT THE ORIGINAL INFORMATION WAS.

>> WE HAVE ONE MORE QUESTION. IT LOOKS LIKE WE'RE RUNNING OUT OF TIME AND IF YOU CAN ANSWER IT AND WE WILL GET INTO IT IN MORE DETAIL ONLINE THE PANEL.

SOMEBODY ASKED CAN YOU SCULLS SECURITY HASHTAG CONCERNS.

>> ONE OF THE ISSUES WITH Wi Fi IS THAT IT'S NOT A PRIVATE IDENTIFIER.

SAME IDENTIFIER AS A SOCIAL SECURITY NUMBER.

THE NETWORK CAN KNOW MY Wi Fi AND AS PEOPLE USE Wi Fi AS A ROBUST IDENTIFIER IT'S GOOD TO KNOW, A LOT OF PEOPLE --

LaTONYA OUTSIDE KNOWS YOUR Wi Fi IDENTIFIER AND IF PEOPLE ARE MAKING ASSOCIATIONS TO THAT IT'S PROBLEMATIC FROM A PRIVACY AND SECURITY PERSPECTIVE.

>> THANK YOU VERY MUCH.

>> WE WILL INVITE OUR PANELISTS TO COME ON UP.

[APPLAUSE]

>> WE'RE IN THE PROCESS OF TRYING TO TURNING THE AIR DOWN SO WE CAN BE HEARD MORE CLEARLY SO I APOLOGIZE IF ANYONE COULDN'T HEAR WHAT WE WERE SAYING.

I'M KRISTEN ANDERSON, ALSO AN ATTORNEY IN PRIVACY IDENTITY PROTECTION AND I WILL BE CO-MODERATING THIS PANEL. AS A REMINDER HOW TO SUBMIT QUESTIONS, IN THE LIVE AUDIENCE FILL OUT A QUESTION CARD AND SOMEONE WILL GET THAT. WE MAY BE TAKING THEM THROUGHOUT BUT DEFINITELY AT THE END AND IF YOU ARE WATCHING VIA WEBCAST YOU CAN SUBMIT YOUR QUESTION VIA E-MAIL TO MOBILEDEVICETRACKING@FTC.GOV OR TWEET TO #FTCMOBIL. OR IN THE WORKSHOP THREAD. WHEN WE PUT TOGETHER PANELS WE TRY TO INCLUDE AS MANY PERSPECTIVES AS POSSIBLE SO WE CAN EVALUATE FROM DIFFERENT ANGLES. TODAY WE'RE JOINED BY ELAN AESTERMAN, FROM CREATE WITH CONTEXT, A DIGITAL INVASION FIRM FOCUSED ON STRATEGIC RESEARCH AND DESIGN RESPONSIBLE FOR CORPORATE DEVELOPMENT AND HANDS ON CLIENT WORK INCLUDING INVASION AND DIVINE. JAMES IS A JAMES RIESENBACH WHO HAS LED INNOVATION BUSINESSES 25 YEARS. HE HAS BEEN INSIDE FOR -- >> NEXT IS SETH SCHOEN, WHERE HE HAS WORKED 2001 PROMOTING IMPLICATIONS OF TECHNOLOGY FOR INDIVIDUAL RIGHTS. NEXT WE HAVE MALLORY DUNCAN WHO SERVED AS SENIOR VICE PRESIDENT AND GENERAL COUNCIL FOR THE NATIONAL RETAIL FEDERATION FOR MORE THAN 15 YEARS. HE IS RESPONSIBLE FOR COORDINATING STRATEGIC AND REGULATORY INITIATIVES INVOLVING CUSTOMER DATA PRIVACY, FINANCIAL SERVICES AND CONSUMER PROTECTION. AND FINALLY, WE HAVE GLENN TINNINLY WHO FOUNDED MEXA INTERACTIVE TO SEE HOW INCREASING -- [READING QUICKLY] >> BEFORE WE GET STARTED I WILL HAVE SETH PROVIDE AN OVERVIEW OF WHAT THE ELECTRONIC FOUNDATION IS AND WHAT THE INTEREST IS IN MOBILE DEVICE TRACK. >> THANKS. THE ELECTRONIC IS AN ADVOCACY ORGANIZATION BASED ON IN SAN FRANCISCO. WE HAVE ONE LAWYER THAT WORKS IN DC AND DOZENS OF PEOPLE IN

SAN FRANCISCO.

WE'RE INTERESTED IN THE IMPLICATIONS OF TECHNOLOGY FOR INDIVIDUAL RIGHTS INCLUDING PRIVACY.

AND WE TEND TO THINK OF LOCATION AS ONE OF THE MOST SENSITIVE FORMS OF INFORMATION BECAUSE OF THE WAY IT IMPLICATES THE OTHER KINDS OF INFORMATION.

AND I CAN TALK MORE ABOUT THAT. BUT IT IS SORT OF THE META PERSONAL INFORMATION BECAUSE YOU CAN USE IT TO DO SOME OTHER KINDS OF THINGS.

SO WE'RE INTERESTED IN THE IMPLICATIONS OF LOCATION TRACKING FOR PERSONAL PRIVACY IN THAT RESPECT.

>> THANKS, SETH.

I'LL TRY IF YOU COULD INTRODUCE YOURSELF AND CREATE WITH CONTEXT.

>> SURE.

WE ARE AN EXPERIENCED DESIGN FIRM.

WE DESIGN USER EXPERIENCES FOR DIGITAL DEVICES SO ANYTHING FROM MOBILE TO WEB, TO WEARABLES, ANYTHING THAT HAS A DIGITAL INTERFACE.

AND WHAT WE REALLY DO IS TRY TO UNDERSTAND THE CONSUMER FIRST, WHAT DO THEY CARE ABOUT, WHAT ARE THEY DOING, WHAT DO THEY NEED, WHAT DO THEY WANT, AND BASED ON THAT, THAT'S HOW WE DO OUR DESIGN.

SO IT'S A DATA DRIVEN DESIGN PROCESS.

>> AND TO GET US STARTED WE WILL JUST HAVE GLENN FROM MEXA AND JIM FROM I INSIDE, IF YOU CAN DESCRIBE THE SERVICE AND TECHNOLOGIES THAT YOUR COMPANIES OFFER AND THE KINDS OF INSIGHTS THEY'RE PROVIDING TO RETAILERS AND YOUR CUSTOMERS.

>> SURE.

GOOD MORNING.

IT'S A PLEASURE TO BE HERE.

I INSIDE IS A TECHNOLOGY COMPANY THAT HAS BEEN IN THE BUSINESS OF CREATING LOCATION BASED SERVICES FOR MANY YEARS NOW, BUT OUR FOCUS HAS MOVED OVER THE RECENT YEARS TO CREATING TECHNOLOGIES THAT HELP OUR CLIENTS WHICH ARE PRIMARILY RETAIL BETTER UNDERSTAND HOW TO IMPROVE THE CUSTOMER SERVICE AND EXPERIENCE AND THEIR OPERATIONS AND ALSO AT THE END OF THE DAY,

HELP THEM COMPETE MORE EFFECTIVELY AGAINST THE GROWTH OF E-COMMERCE COMPANIES THAT HAVE COMPROMISED AND MADE IT A LITTLE BIT MORE DIFFICULT TO COMPETE IN TODAY'S RETAIL EXPWRIK MORTAR ENVIRONMENT SO WE PROVIDE A VARIETY OF TOOLS AND EVERYTHING THAT WE DO IS AGGREGATED.

WE VIEW OURSELVES AS PART OF A CONTINUUM OF MARKETING RESEARCH COMPANIES THAT HAVE BEEN OUT THERE FOR MANY, MANY YEARS PROVIDING INSIGHTS BASED ON STATISTICAL SAMPLES OF DATA. WE'RE NOT IN THE BUSINESS OF LOOKING AT INDIVIDUAL CONSUMERS OR TRYING TO PROVIDE INDIVIDUAL INSIGHTS.

WE'RE IN THE BUSINESS OF PROVIDING AGGREGATED VIEWS THAT HELP OUR CLIENTS COMPETE MORE EFFECTIVELY.

>> AND MEXIA IS SIMILAR ALREADY TO i INSIDE.

WE'RE A LOCATION ANALYTIC FIRM AND WE CAPTURE DATA FOR OUR CLIENTS BASED ON AGGREGATE COLLECTION OF THE DATA THAT HELPS OUR CLIENTS UNDERSTAND SOMEWHAT HAPPENING WITHIN THEIR LOCATION.

OUR CORE BELIEF IS THAT WE WANT TO GIVE THEM THE ADVANTAGE AND THEN THEM UNDERSTAND HER TO BEHAVIORS SO THAT THEY HAVE THE -- THEY HAVE THE ADDED BENEFIT OF WHAT IS HAPPENING ONLINE AND BEING ABLE TO COMPARE IT ON LOCATION.

OUR CLIENTSDZ PRIMARILY ARE AIRPORTS SHOPPING CENTERS AND LARGE RETAILERS ALL TRYING TO UNDERSTAND WHAT THEY CAN DO BETTER TO HELP THE CONSUMER EXPERIENCE AND MAKE THAT MORE EFFECTIVE, MORE EFFICIENT FOR CONSUMERS WHEN THEY ARE IN A LOCATION AND WE WORK WITH CLIENTS ON A ONE TO ONE BASIS TO ANALYZE THAT BEHAVIOR AND ANONYMIZE IT IN MULTIPLE FASHIONS SO THERE'S NO COMBINING OR PROFILING TO BE HAPPENING WITHIN ANY OF THE DELIVERABLES THAT WE'RE PROVIDING.

>> COULD EACH OF YOU TALK A LITTLE BIT ABOUT WHAT TECHNOLOGY YOU'RE USING TO PROVIDE THOSE SERVICES?

>> SURE.

WHAT WE DO, WE WILL WORK BOTH

WITH THE RETAILERS EXISTING TECHNOLOGY, IF THEY HAVE Wi Fi ACCESS POINTS THAT ARE USED FOR PUBLIC Wi Fi TO PROVIDE Wi Fi TO CONSUMERS.

THOSE SERVICES OF HARDWARE CAN ALSO POLL THE DATA AND HELP TO US AGGREGATE IT AND WE ALSO HAVE OUR OWN HARDWARE THAT WE WILL PLACE THROUGHOUT THE STORE TO UTILIZE A COMBINATION OF BLUETOOTH AND Wi Fi TO SAMPLE THE SHOPPER AUDIENCE OR IN AIRPORTS OR OTHER ENVIRONMENTS.

>> AND AGAIN VERY SIMILAR WE CAPTURE A BLUETOOTH CHARACTERIZATION OR BLUETOOTH LOW ENERGY AND Wi Fi SIGNAL. WE'RE A LITTLE DIFFERENT IN THAT WE ONLY ASSEMBLE AND INSTALL OUR OWN HARDWARE IN FACILITIES SO WE'RE NOT DEPENDENT ON PRE-EXISTING INSTALLATIONS OF ANYTHING TO USE OR CAPTURE THE DATA.

WE'RE INSTALLING OUR OWN HARDWARE IN SPACES BASED ON DELIVERABLES OF WHAT THE CLIENT IS TRYING TO ACHIEVE AND DEPENDING ON THE GRANULARITY THAT THEY'RE TRYING TO ACHIEVE.

>> ARE EACH OF YOU ALSO COMBINING THE DATA THAT COMES FROM THE Wi Fi AND THE BLUETOOTH?

>> YES.

WE COMBINE IT. WHAT WE TRY TO DO IS DEDUPLICATE SO IF WE'RE SEEING THE SAME BEHAVIORS IN MULTIPLE CASES WE TRY TO LOOK JUST IN AGGREGATE SO WE WANT TO BE SURE THAT WE'RE PROVIDED THE MOST STATISTICALLY RELIABLE SAMPLES THAT WE CAN TO OUR CLIENTS.

>> I WILL ANSWER THAT A LITTLE BIT DIFFERENTLY.

BY COMBINING IF YOU MEAN COMBINING WITHIN AN INDIVIDUAL CLIENT WE WILL MAKE SURE ONE DEVICE HAS BOTH IF WE CAPTURE BOTH SIGNALS IT'S ONE DEVICE BUT NO DATA IS EVER COMBINED WITH OTHER CLIENTS.

SO I JUST WANTON CLEAR WE'RE NOT COMBINING DATA MONGT CLIENTS. IT'S ALWAYS WITHIN AN EXISTING CLIENT.

>> THAT APPLIES TO US AS WELL.

>>

>> MALLORY IF YOU COULD GIVE US INSIGHT FOR WHAT RETAILERS ARE LOOKING TO GAIN FROM THE

TECHNOLOGIES, ARE THERE PARTICULAR INSIGHTS THAT ARE IMPORTANT TO MEMBERS AND JUST SOME OF THEIR THOUGHTS ON THIS.

>> I WOULD BE HAPPY TO. LET ME START BY SAYING, NRF REPRESENTS THE BROAD RANGE OF THE RETAIL INDUSTRY FROM SINGLE STORE OPERATORS TO THE LARGEST RETAILERS IN THE U. S. AND RETAILERS OBVIOUSLY WANT TO BE SUCCESSFUL BUT TO BE SUCCESSFUL THEY HAVE TO DO TWO THINGS.

FIRST OF ALL THEY HAVE TO UNDERSTAND THEIR CUSTOMERS. AND SECONDLY THEY HAVE TO UNDERSTAND THE STORES. THAT MAY SOUND VERY OBVIOUS BUT, IN FACT, IT'S VERY, VERY DIFFICULT TO DO IN EACH CASE. THE FIRST DRIVE IS FOR RETAILERS IS FINDING OUT HOW DO WE DELIVER THE SERVICE AND ATTENTION TO OUR CUSTOMERS SO THEY WILL BE ENCOURAGED TO COME BACK TO THAT PARTICULAR STORE.

THE SECOND ONE, WHICH IS UNDERSTANDING THE STORE IS, HOW IS YOUR STORE LAID OUT? HOW ARE THINGS ARRANGED IN A STORE IN SUCH A WAY THAT PEOPLE ARE ATTRACTED TO IT. HOW DO PEOPLE MOVE THROUGH THE STORE NO THAT COULD BE FACTORED BY YOUR PRODUCT SELECTION, IT'S LOCATION WITHIN THE STORE AND NECESSARILY WHAT ARE THE AVENUES FOR LOSS SO LOSS PREVENTION IS PART OF IT.

WE USE THE TOOLS TO UNDERSTAND OUR STORES AND THEIR OPERATION. WHEN WE DO THAT, YOU ARE STRIKING A BALANCE, MAXIMIZING THE STORE' EKE EFFECTIVENESS WHICH INCREASES YOUR ABILITY TO COMPETE WITH OTHERS AND AT THE SAME TIME YOU CAN'T GO SO FAR IN DOING IT THAT YOU DESTROY THE TRUST THAT IS INHERENT IN THE FIRST THING WHICH IS BRING PEOPLE IN SO THEY WANT TOSHOP IN YOUR STORE.

WE ARE USING THE TOOLS TO FIND THE BEST POSSIBLE BALANCE BETWEEN THOSE TWO.

GREAT.

JIM AND GLENLT YOU MENTIONED A THE VARIETY OF INSIGHTS YOU CAN OFFER TO RETAILERS OR OTHER CUSTOMERS.

I'M WONDERING IF YOU CAN GIVE US MORE DETAILS ABOUT THE

PARTICULAR INSIGHTS THAT YOU OFFER, FOR EXAMPLE, YOU KNOW, ARE YOU LOOKING AT NEW VERSUS RETURNING CUSTOMERS ARE YOU ABLE TO TELL WHO ENTERED AS OPPOSED TO POSSIBLY WALKED BY A LOCATION.

>> THERE'S A RANGE OF DATA THAT WE'RE ABLE TO COLLECT OUR METHODOLOGIES.

THE FIRST IS PATHING, SO WE'RE ABLE TO LOOK IN AGGREGATE AT HOW SHOPPERS MOVE THROUGHOUT THE STORE.

THE RETAILERS ARE USING THIS 234 MANY WAYS TO OPTIMIZE THE STORE ENVIRONMENTS.

ONE OF THE MOST EXPENSIVE ASPECTS OF RUNNING A RETAIL BUSINESS IS REAL ESTATE AND THEY WANT TO UNDERSTAND WHERE DO SHOPPERS GO AND HOW ARE THEY OPTIMIZING THAT ENVIRONMENT FROM A MERCHANDISING AND MARKETING PERSPECTIVE BUT ALSO FROM A FLOW FOR CUSTOMERS SO CUSTOMERS CAN EASILY FIND WHAT THEY'RE LOOKING FOR.

SO TAPPING IS IMPORTANT.

THE SECOND TO IS DWELL TIME SO WE'RE ABLE TO LOOK, AGAIN IN AGGREGATE, HOW MANY SHOPPERS GO IN A PARTICULAR DEPARTMENT AND WHAT IS THE AVERAGE TIME THEY SPENT THERE THAT DEPARTMENT.

THAT HELPS THEM TO UNDERSTAND -- THE RETAILERS UNDERSTAND, ARE THEY PROVIDING THE RIGHT LEVEL OF CUSTOMER SERVICE?

DO THEY HAVE THE RIGHT STAFFING AT A PARTICULAR TIME?

ARE THEY PROVIDING THE RIGHT PRODUCTS?

AND THE RIGHT MIX OF PRODUCTS SIDE BY SIDE.

THE THIRD, AND THIS IS VERY IMPORTANT BOTH IN RETAIL AND OTHER ENVIRONMENTS IS WAITING TIME.

OUR CLIENTS ARE VERY FOCUSED ON PROVIDING THE BEST THROUGH PUT OF THE CASH REGISTERS AND MAKE SURE CUSTOMERS DON'T WAIT IN LINE.

ONE YOU OUR CLIENTS AS A BENCHMARK THAT THEY SET THAT SAID TWO MINUTES IN THE MAXIMUM TIME THEY WANT ANY CUSTOMER TO WAIT AT A CASH REGISTER AND WE HELP THEM SAY, OVER THE COURSE OF A BEAK, BY DAY OF WEEK AND TIME OF DAY AND THIS IS WHERE YOU'RE MEETING THE BENCHMARKS

AND YOU'RE NOT.
AND HE HAD TO CONSIDER YOU OPEN
MORE LINES, DO YOU STAY UP
DIFFERENTLY AND THAT IS
IMPORTANT, AND THE FINAL ONE IS
BECAUSE OF THE WAY THAT WE HASH
AND WE TALK ABOUT THIS ON A
DEVICE MULTIPLE TIMES AND THAT
WILL SHOW 5 RETAILER WHAT
PERCENTAGE OF SHOPPERS CAME BACK
TO THIS, TO THEIR STORE ON A
RECURRING BASIS, MANY GROCERS
AND CONVENIENCE STORES ARE TRTD
IN THAT BECAUSE THEY WANT TO
UNDERSTAND HOW ARE THEY DOING IN
CUSTOMER LOYALTY AND REPEAT
VISITATION AND HIGH SCHOOL EVEN
ACROSS THE SINGLE CHAIN.
WE DON'T SHARE A CROSS DIFFERENT
COMPANIES BUT WITHIN THE SAME
CHAIN, A CONVENIENCE STORE
COMPANY MAY WASN'T TO KNOW, ARE
THERE CUSTOMERS GOING TO
MULTIPLE STORES WITHIN THE SAME
CHANGE.

THESE ARE THE BASICS OF WHAT WE
DO.

GLENN I'M SURE YOU HAVE OTHERS
AS WELL.

>> TOUCHING ON WHAT'S MONTHLY
SAID, THE COLLECTION OF
RETAILERS ARE -- THERE ARE
DEPARTMENTS SET UP TO HELP THEM
DETERMINE WHAT PRODUCTS THEY ARE
GOING TO GO ACROSS RA CHAIN OF
STORES OR GROUPING OF STORES SO
THEY'RE INTERESTED IN KNOWING
OUR CUSTOMER BASE SPENDING TIME
IN CERTAIN AISLES OR AROUND
CERTAIN PRODUCTS WHERE IN ONE
AREA OF THE COUNTRY AND WHERE
THEY MAY NOT BE IN ANOTHER AREA
OF THE COUNTRY AND THAT HELPS
THEM TO DETERMINE IS THE PRODUCT
SELECTION BE DIFFERENT OR
PRODUCT MIX BE DIFFERENT AND BY
MEASURING WHETHER OR NOT THEY'RE
DWELLING IN SPECIFIC AISLES OR
DISPLAYS, AND IT'S ACTUALLY
STOPPING THE CHECK OUT.

THAT HELPS THEM TO MEASURE
DIVERSION ARE PEOPLE COMING IN
WITHOUT CHECKING OUT.

SO PRODUCT SELECTION AND WHERE
AISLES ARE PLACED AND HOW AISLES
ARE PLACED IN STORES ARE CRUCIAL
UNDERSTANDING POINTS FOR
RETAILERS IN A SHOPPING MALL
ENVIRONMENT THE COLLECTION OF
THIS IS IMPORTANT.

HOW IS THE STORE MIX SET UP?
WE WORKED WITH MALL CLIENTS WHO
INTRODUCE ADD NEW STAR TO A MALL

AND THEY WANT TO UNDERSTAND ARE THE CUSTOMERS GOING IN THE NEW STORE THERE ALSO GOING TO OTHER STORES AND SPENDING TIME IN OTHER STORES OR NOT VISITING THE NEW STORE AND IF THEY'RE GETTING A POSITIVE AMOUNT OF INFORMATION FROM THAT, THEN THEY CAN LOOK TO EXPAND THE STORE ACROSS THE OTHER LOCATIONS AND OTHER MALL LOCATIONS.

THESE ARE THINGS -- THESE ARE DECISIONS THAT AFFECT MILLIONS OF DOLLARS IN TERMS OF REAL ESTATE, IN TERMS OF LEASING PRODUCT SELECTION, PRODUCT MIX AND THESE ARE THE DECISIONS THAT THIS DATA IS HELPING COMPANIES TO MAKE ALL THE IN AGGREGATE. ONE OF THE THINGS IS IN STAFFING WE WORKED WITH A MALL THAT CONFIRMED THEY HAD SECURITY ON A SPECIFIC TIME OF DAY ACROSS THE NETWORK.

WHAT WE PROVIDED THEM WITH WAS, YOU KNOW, YOUR TRAFFIC AND WHAT YOU THINK IS HAPPENING OR WHAT YOU TRADITIONALLY THINK IS HAPPENING IN THAT CENTER HAS SHIFTED BY ABOUT AN HOUR AND A HALF.

SO THEY READJUSTED THEIR STAFFING SCHEDULES OF THEIR SECURITY BECAUSE THEY WANTED TO STAFF UP MORE WHEN THEY'RE ACQUIRED AND THEY DON'T NEED AS MANY ON HAND WHEN THERE'S LESS PEOPLE.

IT'S ALL BASED ON RATIO AND THAT IS ALLOWING THEM -- NOT CURRENTLY NOW BUT AS THEY ROLL THIS OUT, THEY ESTIMATED THIS IS ABOUT A QUARTER MILLION DOLLARS SAVINGS TO THEIR BOTTOM LINE.

SO THEY'RE HELPING THEIR BOTTOM LINE BUT ALSO MAKING SURE THAT THEY'RE -- THEIR CUSTOMERS ARE GETTING THE ANY QUESTIONS TERMS OF HAVING STAFF ON HAND WHEN THE RATIOS ARE REQUIRING IT.

SO THE CUSTOMER EXPERIENCE IS NOT NECESSARILY IMPACTED IMMEDIATELY THERE BUT IT IS BECAUSE IF SOMETHING WERE TO OCCUR THEY KNOW THEY HAVE APPROPRIATE SECURITY STAFF ON HAND AND THOSE ARE DIFFERENT WAYS TAKING THE INFORMATION AND ITS GENERAL INFORMATION, BASED ON PAT ANDERSON MOVEMENTS AND BEHAVIOR THAT IS ALLOWING THEM TO THEN ANALYZE THAT AND MAKE THESE DECISIONS.

>> OK.

I HAVE A BIT OF A TECHNICAL QUESTION. WITH RESPECT TO THE Wi Fi AND BLUETOOTH, ARE YOU -- WHETHER IT'S TRACKING WAN MALL, CAN YOU SET IT UP SO THAT YOU'RE ONLY TRACKING IN THE COMMON AREAS OF MALLS AND NOT SPILLING OVER INTO THE STORES OR FOR INDIVIDUAL RETAILERS CAN YOU ENSURE THAT THE TRACK IS IS TAKING PLACE JUST WITHIN THE PAULS OF THE STORES OR DID YOU EVER SEE IT SPILL OUT INTO THE HALLWAY AND HOW DO YOU ACCOUNT FOR THOSE THINGS?

>> WE'RE ABLE TO TO ATTENUATE THE DEVICES SO THAT WE CAN BASICALLY EITHER NATION OWE OR INCREASE THE RANGE DEPENDING ON THE GOALS AND OBJECTIVES SO WE CAN -- EACH INDIVIDUAL PIECE OF HARDWARE CAN HAVE A RANGE THAT WE DETERMINE THAT SAYS, WE ONLY WANT TO TRACK, WITHIN THIS STORE OR EVEN WITHIN THIS DEPARTMENT OR EVEN DOWN TO WITHIN THIS PARTICULAR LANE WITHIN -- FOR CASH RENTAL CENTERS.

>> SO WE HAVE A VARIETY OF TECHNOLOGIES THAT ALLOW US TO GEO FENCE AND BLACK OFF OTHER AREAS THAT WE DON'T WANT TO SEE.

>> VERY JIMLAR, IN A SMALL ENVIRONMENT OR LARGE ENVIRONMENT LIKE THAT, NATURALLY A SIGNAL IS STILL A SIGNAL, BUT BASED ON THE DELIVERABLE BASED ON -- IN A COMMON AREA IS HOW THINGS ARE REPORTED ON.

>> AND SO WE HAVE GOTTEN A QUESTION, BOTH OF YOU MENTIONED THAT ONE OF THE INSIGHTS THAT YOU'RE ABLE TO OFFER IS THE NEW VERSUS RETURNING CUSTOMER RATE. SO YOU KNOW, IN ORDER TO DETERMINE THAT, HOW LONG TO YOU KEEP THAT INDIVIDUAL INFORMATION TO DETERMINE THAT?

>> IN TERMS OF INDIVIDUAL INFORMATION, IT'S -- WE DON'T REPORT -- WE'RE NOT REPORTING ON SPECIFIC DWIETSES THAT ARE RETURNING.

TO AIR HE CAPTURED IN AGGREGATE FORM SO IT'S A PERCENTAGE. WHAT WE REPORT ON IS 12 PERCENT OF THE CUSTOMERS IN THE STORE VISIT THREE TIMES A MONTH, AND 8% VISIT 4 TIMES A MONTH. SO THAT'S WHAT WE'RE -- WHAT IS BEING LET THE RECORD REFLECTED

AND MANAGED.
AND THE REASON TO DO THAT IS TO
KEEP, IT IS AGGREGATE SO IT IS
PERCENTAGES OR A TOTAL NUMBER
COUNT OF DEVICES THAT COMING
BACK IN SO IT'S NOT THIS DEVICE
AND SOME WILL SAY THAT, YES, YOU
CAN STILL TRACK IT OR BRING OUT
AND SPECIFY A SPECIFIC DEVICE,
BUT IN THE END, OUR CLIENTS
DON'T HAVE ACCESS TO THAT
INDIVIDUAL DATA.

THEY HAVE ACCESS TO AGGREGATE
DATA AND IT IS MOVED TO A
DIFFERENT SET OF SERVICES AND
NOT ABLE TO HIGHLIGHT A PERSON.
>> THE OTHER THING TO RECOGNIZE
IS THAT THE TURNOVER THE MOBILE
DEVICES IS FREQUENT AND
INCREASING.

AND THAT THEREFORE ANY DEVICE
THAT IS SEEN IS GOING TO HAVE A
LIMITED LIFE SPAN IN GENERAL AS
FAR AS THE USE OF THAT DATA
BECAUSE CONSUMERS UPGRADE A
DEVICE AND THEN WE BASICALLY ARE
GOING TO SAY A COMPLETELY NEW
DEVICE.

WE OBVIOUSLY DON'T KNOW WHO THAT
CONSUMER IS OR ANYTHING ABOUT
THEM ANYWAY, BUT THAT IS ONE OF
THE KIND OF SELF --
AUTOMATICALLY REFRESHING ASPECTS
OF THE METHODOLOGY.

>> SEEMS LIKE IT WOULD BE USEFUL
TO DRAW THE DISTINCTION BETWEEN
WHAT YOU REPORT TO THE RETAILER
AND WHAT YOU AS THE ANALYTICS
KNOW.

I THINK THE QUESTION WAS WHAT DO
YOU AS THE ANALYTICS ADVISOR NOW
AS OPPOSED TO INFORMATION YOU
PROVIDE TO YOUR RETAIL CLIENTS.

>> WELL, I GUESS THERE ARE TWO
DIFFERENT THINGS.

TWO THINGS: OUR CONTRACTS ARE
VERY SPECIFICALLY AND
PURPOSEFULLY SET OUT THAT THE
DATA THAT IS COLLECTED ON AN
ONGOING BASIS IS OUR CLIENTS'
DATA SO WE ARE LEGALLY AND CODE
OF CONDUCT OBLIGATED AND
CONTRACTUALLY OBLIGATE THANKED
BEAT DON'T GO INTO THAT DATA TO
DETERMINE -- THE DATA BELONGS TO
OUR CLIENT.

SO WE'RE NOT DOING OR GOING BACK
IN TO FIGURE OUT SPECIFIC OR
PULL OUT SPECIFIC DEVICES AS
WELL AS THE DATA STILL ON AN
AGGREGATE SERVER SO IT'S BEING
REPORTED THAT WAY BUT YES AS AN
ANALYTICS FIRM YOU COULD SAY

THAT, YES, WE HAVE ACCESS TO THE DATA ACROSS BUT WE AS A COMPANY DO NOT COMBINE ANY OF THAT DATA AND IT BELONGS TO THE INDIVIDUAL CLIENTS.

>> IT'S IMPORTANT TO NOTE THE ONLY DATA THAT IS STORED BY ANY OF THE COMPANIES THAT ARE SIGNATORIES TO THE CODE OF CONDUCT ARE HASHED, MAC ADDRESSES.

NOW WE UPS FROM ASHKAN IS THERE A WAY TO SEE A PATTERN?

SURE IF THERE ARE A MASSIVE NUMBER OF IMPLICATIONS FROM THE ENTIRE UNIVERSE BUT THAT'S NOT WHERE THE STATE OF THE INDUSTRY -- AND IT FOR A LONG TIME TO COME.

WHAT WE HAVE IS A HASH MAC ADDRESS SO THAT WE DON'T ACTUALLY STORE ANYTHING THAT IS IDENTIFIABLE EVEN TO THE SPECIFIC DEVICE RIGHT NOW, AND THEN EVEN FOR OUR OWN PURPOSES, THE ONLY THING THAT WE WILL DO IS USE IT AGAINST THE STATISTICAL MODELING METHODOLOGY, SO WE NEVER PRETENDED OR CLAIMED TO BE A TRACKING COMPANY.

WE'RE A STATISTICAL MODELING AND MODELING RESEARCH COMPANY THAT PROVIDES PROFILES OF WHAT HAPPENS IN THE STORE BASED ON RELATIVELY SMALL SAMPLE SIZE. YOU KNOW, WITH BLUETOOTH AND THE QUESTION WAS RAISED EARLIER, WHAT PERCENTAGE OF THE DEVICES ARE ACTUALLY SEEN WHEN PEOPLE GO INTO A STORE?

WELL, BLUETOOTH IS A VERY PRECISE METHODOLOGY TO SEE DOWN TO A GRANULAR LEVEL WHERE CONSUMERS ARE.

BUT AT THE SAME TIME WE'RE SEEING ABOUT 5% OF THE SHOPPERS THAT WALK INTO THE STORE.

SO THIS IS A TECHNOLOGY THAT IS SUITED TOWARD A VERY HIGH TRAFFIC ENVIRONMENT, STORES THAT HAVE A THOUSAND OR TWO THOUSAND SHOPPERS A DAY, WHEN YOU'RE SEEING 5% IT BECOMES MEANINGFUL DATA.

SO THAT'S REALLY THE WAY THE APPROACH IS WRORG.

AND SO IF YOU'RE SEEING 5% MAYBE YOU'RE GOING TO SEE A LARGER PERCENT WITH Wi Fi , MAYBE AS MUCH AS 25% BUT IT'S STILL A SAMPLE AND IT'S NOT ABOUT TRYING TO.

IT'S ABOUT CREATING INSIGHTS THAT ARE USEFUL TO THE BUSINESS.

>> THANK YOU.

WE HAVE GOTTEN A LOT OF GREAT QUESTIONS FROM OUR AUDIENCE. ONE THAT HAS COME IN IS FOR MALLORY.

SOMEBODY ASKED IF YOU COULD EXPAND UPON HOUSE THIS TECHNOLOGY HELPS WITH LOSS PREVENTION.

>> SURE RETAILERS USE A LOT OF TECHNIQUES FOR LOSS PREVENTION. WE HAVE SECURITY CAMERAS IN THE STORE FOR EXAMPLE.

WE WILL HAVE ANONYMOUS SECURITY PERSONNEL IN THE STORE.

IT IS ALSO POSSIBLE THAT, IF YOU SEE GOODS, MOVING OUT OF THE STORE, IN CONJUNCTION WITH PARTICULAR -- AGAIN, ANONYMOUS IDENTIFIERS, THAT SHOWS YOU WHERE THERE ARE LEAKS IN YOUR OPERATION, AND IT CAN ALSO POTENTIALLY SHOW YOU WHERE THERE ARE -- THERE MIGHT BE GROUPS.

WE HAVE A LOT OF PROBLEMS WITH ORGANIZED RETAIL THREATS.

THERE MAY BE GROUPS MOVING TO COMMIT CRIMES IN THE STORE.

>> THANK YOU.

DO.

AND JIM ONE OF THESE QUESTIONS THAT CAME IN IS ABOUT SOMETHING THAT YOU HAVE SAID ABOUT THE AGGREGATE INFORMATION SO THE QUESTION IS: FOR INFORMATION AT THE RETAIL -- IS THE INFORMATION AGGREGATED AT THE RETAIL LOCATION OR COLLECTED AND STORED INDIVIDUALLY ON YOUR SERVERS AND AGGREGATED FOR REPORTING?

>> OK.

LET ME TRY TO INTERPRET THE QUESTION

I ASSUME THAT IS HOW DO WE COLLECT THE DATA AND REPORT IT. WE COLLECT EVERYTHING IN EACH SPECIFIC ENVIRONMENT WHERE WE HAVE PRESENCE.

FOR SOME CHAINS SAY WE HAVE 20 OR 350 STORES, EACH INDIVIDUAL STORE IS COLLECTED IN ITS OWN DATA FILE SO TO SPEAK, AND THEN WHAT WE WILL DO, IT'S IMPORTANT FOR OUR CLIENTS THAT THEY'RE ABLE TO SEE THIS DATA, EITHER AT THE STORE LEVEL, AT THE REGIONAL OR DIVISIONAL LEVEL AND AT THE CORPORATE LEVEL SO WHAT WE WILL DO, WE WILL -- IN KEEP BEING WITH THE NOTION OF AGGREGATED REPORTING WE WILL ROLL IT UP

INTO THE APPROPRIATE LEVEL OF
DETAIL THAT THE PEOPLE THAT ARE
GOING TO ACTUALLY USE THE DATA
WANT TO SEE IT AND IN MANY CASES
IT IS AT A CORPORATE LEVEL.
BUT IT'S IMPORTANT FOR US THAT
WE'RE PROVIDING THE TOOLS.
AT THE END OF THE DAY, IF A
RETAILER IS TRYING TO IMPROVE
THE CUSTOMERS EXPERIENCE, THAT
HAPPENS WHERE -- YOU KNOW WHERE
THE RUBBER MEETS THE ROAD IS AT
THE STORE LEVEL AND THE STORE
MANAGER REALLY WANTS TO BE ABLE
TO UNDERSTAND WHAT CAN THEY DO
ON A DAY-TO-DAY BASIS TO STAY UP
APPROPRIATELY, TO MARKET AND
MERCHANDISE THEIR PRODUCTS
APPROPRIATELY AND MAKE SURE THAT
THEY HAVE THE RIGHT NUMBER OF
LANES AND CASH RECOMMEND CENTERS
OPEN.

>> AT THIS TIME SINCE WE TALKED
ABOUT THE INSIGHTS THAT THE
RETAILERS CAN GAIN AND THE
BENEFITS THAT CAN ACCRUE TO
CUSTOMERS WE WOULD LIKE TO LEARN
MORE ABOUT THE CONSUMERS
PERSPECTIVE AND THEIR NAVI GATING
THE RETAIL ENVIRONMENT SO WE
WILL INVITE I LANYA WESTERMAN TO
TELL US ABOUT WHAT SHE HAS FOUND
IN HER RESEARCH.

>> MAJTIC?

OK.

THANK YOU.

BEFORE I GET STARTED WITH WHAT
CUSTOMERS THINK AND WANT I
WANTED TO DO A LITTLE BIT OF
BACKGROUND.

REALLY WHAT WE FIND IS WHAT REAL
TAILERS WANT TO DO IS TREAT
TRUST WITH THE CONSUMERS AND THE
CONSUMERS WANT TO TRUST THE
RETAILERS BUT THERE ARE FOUR
THINGS TO THAT WE NEED TO HAVE
TO HAVE THAT HAPPEN.

FIRST CONSUMERS HAVE TO
UNDERSTAND THERE HAS TOOK
TRANSPARENCY AND THEY HAVE TO BE
AWARE OF WHAT IS HAPPENING.
SECONDLY THEY HAVE TO HAVE
CHOICE AND BE ABLE TO CONTROL IT
IF THEY CARE.

THEY DON'T ALWAYS CARE BUT IF
THEY CARE.

THIRD IS ENGAGEMENT SO IF THEY
DO CONTROL IT IS IT EASY TO DO.
AND LASTLY THAT THEY'RE GETTING
VALUE.

SO IF THEY'RE GIVING YOU
SOMETHING, ARE YOU GIVING
SOMETHING BACK.

>> THE OTHER THING I WANT TO DO IS TALKING ABOUT DESIGN AND HOW DESIGN DIFFERS FROM AFTER THE. IF YOU'RE AN ARTIST YOU'RE CREATING SORE FOR YOURSELF. IF YOU'RE A DESIGNER WHAT WE TRY TOO DO IS CREATE FOR OTHER PEOPLE.

SO IT'S IMPORTANT FOR US TO BEGIN, BEFORE WE EVEN DRAW OUT ANYTHING IS UNDERSTAND THE PEOPLE THAT WE'RE DESIGNING FOR, WHO ARE THEY, WHAT TO THEY CARE ABOUT, WHAT IS THEIR CONTEXT AND ENVIRONMENT AND MAKING SURE THAT WE'RE DESIGNING FOR THAT.

SO REALLY WHAT I'M GOING TO TALKING ABOUT TODAY IS THE FIRST PHASE OF UNDERSTAND AND SOME OF THE RESEARCH WE RECENTLY DID. THIS IS STUDY AND LOOKED AT RETAILERS -- RETAILERS ACROSS THE COUNTRY AND THERE ARE A SERIES OF TECHNIQUES. QUALITATIVE AND QUANTITATIVE. WHAT WE FOUND OVERALL IS THAT MERGE DO TRUST, IN GENERAL, WE TRUST RETAILERS A LITTLE EXPAJ THAT'S A GOOD SPOT TO BE IN. THE OTHER THING WE FOUND IS THAT WE'RE BILLING TO IF I IF I HAVE UP OUR INFORMATION. 97% OF US HAD GIVE UP OUR INFORMATION FOR A DEAL. SO IT'S NOT THAT WE'RE NOT WILLING TO DO IT. A SHORT VIDEO AND ELISE WILL TELL US ABOUT WHAT SHE THINKS ABOUT ABOUT ARTICLE SHE READ. WE ASKED PEOPLE TO GIVE US THEIR REACTIONS.

>> EVEN IF YOU DON'T SEND IT TO THE Wi Fi , THEY CAN TRACK YOU? BUT THE END OF THE ARTICLE THEY TALKED ABOUT GIVING PEOPLE THE OPTION TO, YOU KNOW, GET AMAZON CREDIT OR GOOGLE PLAY CREDIT, IF THEY GIVE THE INFORMATION AND LET PEOPLE TRACK THEM, YEAH, THEY WILL GET A LOT MORE, YOU KNOW, PEOPLE TO AGREE TO THAT WILLINGLY THAN IF THEY JUST TOOK IT.

>> SO AS LONG AS WE GET VALUE WE ARE WIBLG TO GIVE UP INFORMATION. WHAT WE FIND IS THAT PEOPLE ARE MUCH MORE LIKELY -- TWO AND A HALF % MORE LIKELY TO GIVE UP INFORMATION IF IT MAKES SENSE TO THEM. HERE WE ASKED PEOPLE ABOUT GIVING UP THEIR LOCATION

INFORMATION TO FIND SOMETHING IN 5 STAR.

AND IT MADE SENSE TO PEOPLE WHY THEIR LOCATION WAS NEEDED TO 75% SAID THEY WOULD GIVE THAT INFORMATION.

30% STILL WOULD GIVE INFORMATION THAT DIDN'T MAKE SENSE, THE BOOKS AND MAGAZINES THAT THEY READ BUT STILL JUST TO HAVE AN APPLICATION LIKE A MAP APPLICATION THEY WOULD STILL GIVE UP THAT INFORMATION.

>> THE OTHER THING, ALL DATA IS DIFFERENT AND SOME MEANS MORE THAN OTHERS.

THINGS LIKE YOUR NAME, PHONE NUMBER AND ADDRESS, THOSE ARE THE THINGS TO THE FAR RIGHT, PEOPLE CARE THE LEAST ABOUT. THEY'RE VERY WILLING TO GIVE THAT INFORMATION UP.

WHAT WE FIND PEOPLE CARE THE MOST ABOUT IS PERSONAL DIGITAL DATA, THINGS SUCH AS THE PICTURES ON YOUR PHONE, YOUR ADDRESS BOOK, YOUR SOCIAL NETWORK CONNECTIONS.

THOSE SORTS OF THINGS PEOPLE CARE THE MOST ABOUT.

THE REASON WE FIND THAT IS BECAUSE PEOPLE SAY, YOU KNOW, THESE ARE OTHER PEOPLE, NOT JUST MYSELF.

I CAN GIVE UP MY DATA, THAT'S MY DATA BUT I REALLY DON'T HAVE THE RIGHT TO GIVE UP SOMEBODY ELSE'S DATA SO MY CONTACT LIST AS PHOTOS OF OTHER PEOPLE AND PHOTOS OF OTHER PEOPLE ON MY PHONE AND THAT'S WHERE PEOPLE GET SENSITIVE.

>> THIS IS IMPORTANT, THERE'S A BIG DISTINCTION WITH LOCATION. PEOPLE ARE WILLING TO GIVE UP WHERE THEIR LOCATION IS RIGHT NOW.

THEY SEE BENEFITS WITH THAT AND IT'S NOT SOMETHING THEY ARE CONCERNED ABOUT.

BUT WHEN YOU ASK ABOUT WHERE THEY HAVE BEEN, NOW THEIR CARE AND SOMETHING THEY DON'T WANT TO GIVE UP SO THERE'S A BIG DISTINCTION WITH THAT INFORMATION.

NOW MARK HIGH SCHOOL IN THIS EXPERIMENT READ A SIMILAR ARTICLE AND HE WILL TALK ABOUT WHAT HE CARES ABOUT AND WHAT DOESN'T MATTER AS MUCH.

>> I CAN SEE WHY THEY WOULD DO IT JUST SO THEY KNOW WHAT

CUSTOMERS ARE LOOKING AT AT THE MALLS OR USING THEIR CELL TO GATHER INFORMATION BUT THAT'S KIND OF INVADING YOUR PRIVACY.

I DON'T MIND IF THEY ARE TRACKING WHAT I'M DOING IN THE STORE BUT GIVING INFORMATION ON MY PHONE WORRIES ME.

I WOULDN'T WANT THEM TO GET MY CONTACTS, MY FILES, MY APPS OR ANYTHING FROM MY CELL PHONE.

MY LOCATION IS FINE, LIKE WHERE I'M WALKING THROUGH THE STORE, AND WHATEVER CAMERAS ARE USING, TRACKING WHAT I'M LOOKING AT AND THINGS LIKE THAT BUT MY PERSONAL INFORMATION, THAT'S -- IT BOTHERS ME A LOT BECAUSE I DO HAVE PRIVATE INFORMATION ON MY CELL PHONE.

>> WHAT IS IMPORTANT AS DESIGNERS IS TO UNDERSTAND THAT. BECAUSE WE WANT TO MESSAGE PEOPLE AND EXPLAIN TO PEOPLE AND SEE WHAT THEY DO CARE MOST ABOUT AND MESSAGING THEM ABOUT THAT VERSUS THINGS THEY CARE LESS ABOUT.

THE OTHER THING THAT WE FOUND WHICH IS IMPORTANT IS THAT COMPONENT OF TRUST THAT WE NEED BEFORE ANYTHING ELSE IS TRANSPARENCY.

PEOPLE HAVE TO BE AWARE SOMETHING HAS HAPPENED OTHERWISE THEY'RE NOT GOING TO TRY TO CONTROL IT.

WE HAVE SEEN A LOW AWARENESS OF THE FACT THAT STORES ARE COLLECTING INFORMATION.

33% THINK MAYBE IT COULD HAPPEN. A LITTLE HIGHER WHEN YOU THINK ABOUT LOCATION.

WHEN WE INTERVIEW PEOPLE AFTERWARDS THERE'S A LOT OF CONFUSION SAYING MAYBE IT COULD HAPPEN BUT I'M NOT SURE HOW FAR IT COULD HAPPEN AND IT'S NOT CLEAR TO CONSUMERS SOMEWHAT HAPPENING.

>> I SAID MAYBE BECAUSE THIS IS -- LIKE ONE OF MY CO-WORKERS WAS JUST TALKING ABOUT THIS AT WORK BECAUSE WE HAVE Wi Fi . SO WHEN YOU'RE AT WORK OR WHEN YOU'RE IN THE STORE, WHATEVER, YOUR PHONE GENERALLY CONNECTS TO THE Wi Fi AND YOU MIGHT BE, YOU KNOW, IF YOU HAVE SOMETHING ON THE INTERNET WHILE YOU'RE STROLLING THROUGH, YOU MIGHT BE -- MAYBE AT THE REGISTER YOU

WANT TO CHECK YOUR BANK ACCOUNT
REAL QUICK, SOMETHING LIKE THAT.
I DON'T KNOW.
BUT IT'S A QUESTION THAT HAS
BEEN BROUGHT UP SO I'M I'M NOT
POSITIVE ABOUT IT AND I'M NOT
THAT GOOD AT TECHNICAL THINGS SO
I WOULDN'T KNOW UNLESS I ASKED
SOMEBODY WHO WAS.
>> FROM A DESIGN PERSPECTIVE WE
WANT TO START BY CREATING THAT
AWARENESS AND THE MOST LOGICAL
PLACES ARE SIGNAGES IN STORES OR
ON THE DEVICE AND THIS IS AN
EASY WAY TO CREATE AWARENESS.
THE FIRST THING WE DID IS SAY
LET'S LOOK AT SIGNS AND WE HAD
PEOPLE GO TO STORES AND SHOP FOR
THINGS AND HAD THEM COME BACK AND
DRAW OUT WHAT THEY FOUND NOT
STORES.
PEOPLE ONLY RECALLED 8% OF THE
SIGNS THAT THEY SAW IN THE
STORE.
SO THIS IS PRETTY LOW IF YOU
WANT TO CREATE GENERAL
AWARENESS.
>> THE OVER THING THAT WE FOUND,
WHEN WE HAVE A CONSUMER
NOTIFICATION SUCH AS THIS ONE
HERE IN ONE OF THE COUNTIES
WHERE WE DID THE RESEARCH, O
MEASURE OF THE PEOPLE RECALLED
SEEING THE SIGN AND IT WAS IN
ALL OF THE STORES.
NEXT THING, OKAY, FINE, MAYBE
THEY CAN'T RECALL EXACTLY WHAT
THEY SAW BUT WAS THERE ANY FORM
OF AMBIENT AWARENESS, DID THEY
SEE IT OUT OF THE CORNER OF
THEIR EYE, WERE THEY AWARE THAT
IT WAS THERE AND IT DIDN'T
REGISTER.
SO WE SHOWED THEM SIGNS PRESENT
IN THE STORE WEREN'T.
WHAT WE FOUND IS OVERALL PEOPLE
WERE MORE OFTEN WRONG THAN
RIGHT.
THEY THOUGHT A SIGN WAS IN THE
STORE THAT WASN'T VERSUS HAD A
SIGN THAT ACTUALLY WAS IN THE
STORE.
THERE'S SO MUCH INFORMATION
COMING OUT REGARDING ALL OF
THESE SIGNS WE'RE NOT PAYING
ATTENTION IN GREAT DETAIL.
>> I'M AMAZED HOW MUCH I DON'T
NOTICE.
THAT'S AMAZING.
I WAS SURPRISED HOW MUCH I
DIDN'T NOTICE.
I MEAN, YOU GO TO STORES ALL THE
TIME AND I GUESS YOU ALWAYS

NOTICE AND THEY ARE SPENDING ALL OF THIS MONEY.

AND YOU THINK THEY'RE SPENDING ALL OF THIS MONEY FOR THESE SIGNS AND I DIDN'T EVEN NOTICE.

>> SO WHY AREN'T PEOPLE LOOKING AT SIGNS.

WE FIND SOME PEOPLE ARE IN THE MODE OF GET IN, GET OUT.

THEY WANT TO GET THAT JOB DONE OF EFFICIENCY MODE SHOPPING.

OTHER TIMES WHEN YOU'RE SHOPPING YOU'RE FOCUSING ON THE PRODUCT AND THAT'S WHAT IT IS ABOUT OR THE EXPERIENCE OF THE STORE AND THAT'S WHERE THE ATTENTION GOES.

THERE ARE SOME SCIENCE PEOPLE DID NOTICE.

THERE ARE THREE FACTORS THAT REALLY INCREASED AWARENESS FIRST IS CONTEXT.

IF THE SIGN IS PART OF THE ACTIVITY.

SO IF YOU'RE TRYING TO FIND SOCK KNOWS THE STORE, THE SIGNS THAT TELL YOU WHERE MENSWEAR IS COULD BE HELPFUL.

ALSO WHEN IT'S AT EYE LEVEL AND THERE'S A LOT OF REPETITION OF THE MESSAGE, PEOPLE RECALLED IT. AND AT A GLANCE EASY TO PARSE.

LOOK AT THE RIGHT AT ALL BODY CARE THAT WAS A SIGNED RECOGNIZED BYMOST PEOPLE.

COMPARE THAT TO THE CONSUMER NOTIFICATION SIGN, AND PEOPLE AREN'T SPENDING THAT TIME 20 ENGAGE WITH IT.

SO THE NEXT THING WE WANTED TO LOOK AT, CAN WE JUST MESSAGE ON SMARTPHONES.

GOOGLE DID A STUDY THAT SHOWED 84% OF SHOPPERS USE THEIR PHONES NO STORES.

WE WANT TO FIND OUT HOW OFTEN ARE THEY USING THE PHONES IN STORES AND THAT COULD BE ANOTHER POTENTIALLY EASY WAY TO MESSAGE THEM.

UNFORTUNATELY WHAT WE FOUND, 11 PERCENT OF CONSUMERS HAD PHONES ADVISABLE AT ANY POINT IN TIME IN THE STORE AND THAT'S A LOW PERCENTAGE.

WE COMPARE THAT TO PEOPLE THAT MALL AREA AND FOUND THAT 30% OF THE PEOPLE THERE PHONES VISIBLE IN THAT AREA.

AND WE LOOK AT WHY DON'T PEOPLE HAVE THEIRPHONES OUT?

ONE REASON IS THAT YOUR HANDS ARE BUSY AND WE COUNTED ON THE ABILITY OF PEOPLE TO HAVE THEIR

PHONES OCCUPANT AND AVAILABLE.
AND WHAT WE SAW, WE COUNTED HOW
MANY HANDS THEIR HAD FREE.
WITH NONE, YOU COULDN' T HOLD
YOUR PHONE.
>> OR HAVE ONE HAND FREE OR FULL
ABILITY WITH TWO HANDS FREE.
ONLY 67 PERCENT HAD SOMABILITY
COMPARED TO 80% IN THE MALL.
AT THE END OF THE DAY IF YOU ASK
US, SHOULD WE NOT PUT NOTICE ON
SIGNS AND DEVICES, IT CAN
DEFINITELY REINFORCE THE MESSAGE
PUT IT'S NOT GOING TO CREATE
WIDESPREAD AWARENESS.
AFTER PEOPLE ARE AWARE WILL HEY
SEE IT OUT OF THE CORNER OF
THEIR EYE?
YES, IF THE MESSAGING IS WELL
PLACE ASKED DONE IN CONTEXT IT
CAN BUT AT THE THE ON SET IF
PEOPLE ARE NOT AWARE ADMISSION
NOT NECESSARILY THE WAY TO
CREATE THAT WIDESPREAD
AWARENESS.
SO THE NEXT THING IS -- THIS IS
A SAD STORY.
I TELL YOU HOW EVERYTHING DOESN' T
WORK.
NOW, I WILL TELL YOU HOW IT CAN
WORK.
AS DESIGNERS THIS IS THE
CONTEXT.
WE CAN' T CHANGE THIS AND MAKE
PEOPLE TAKE THEIR FOINS OUT IF
THEY DON' T WANT TO OR PAY
ATTENTION TO SIGNS IF HEY DON' T
WANT TO.
THEREFORE HOW CAN WE SOLVE THIS
PROBLEM GIVEN THAT CONTEXT?
FIRST IS DOM POLICE IT ACE
AWARENESS.
DOES YOUR MAP NO KNOW WHERE YOU
ARE?
I HOPE IT KNOWS THAT.
I DON' T NEED NOTICE TO KNOW
THAT.
IT' S IMPLICIT.
SECOND IS EXPLICIT.
THAT IS DIRECT COMMUNICATI ON.
IT COULD BE A ADVERTISING
CAMPAIGN OR JUST IN TIME NOTICE
AND YOU HAVE TO GET THEIR
ATTENTION FOR PEOPLE TO DO HAVE
SUBMISSION IT AWARENESS.
AND LASTLY, AMBIENT AWARENESS
AND THIS IS SOMETHING THAT COULD
BE HELPFUL TO REINFORCE WHAT
SOMEBODY ALREADY KNOWS.
SO A QUICK HYPOTHETICAL WITH
IMPLICIT AWARENESS AND THIS IS
WHAT WE REALLY ADVOCATE FOR AS
MUCH AS POSSIBLE WHEN COLLECTING

INFORMATION IS, GIVE PEOPLE
VALUE AND IT MAKES SENSE TO THEM
WHY YOU HAVE IT.

SAY YOU DOWNLOADED A WISH LIST
ON HOLIDAYS AND ALL OF YOUR
FRIENDS AND FAMILY, TOLD YOU
WHAT THEY WANTED.

MY MOM LIKE'S CERTAIN PERFUME
AND WHEN YOU WALK INTO A
RETAILER IT SAYS, YEAH, WE HAVE
THAT PERFUME.

AND YOU BUY IT.

NEXT YEAR SAY YOU'RE ONLINE AT
THE SAME SITE AND THEY SAY, IF
YOU LIKE THAT PERFUME, OTHER
PEOPLE WHO LIKE THIS PERFUME
LIKE THIS SWEATER AND PEOPLE
LOVE THAT, YEAH, THAT WOULD MAKE
MY LIFE EASIER IF I HAD THAT.

THEN ALL OF A SUDDEN WHAT DO I
KNOW IN I BELIEVE YOU KNOW WHERE
I AM, WHERE I AM OVER TIME, I
BELIEVE YOU KNOW MY SOCIAL
NETWORK.

I BELONG YOU KNOW WHO I AM ON MY
COMPUTER AND ANOTHER DEVICE AND
I'M GETTING VALUE FOR ALL OF
THAT AND YOU HAVEN'T HAD TO GIVE
ME ANY NOTICE.

IT'S IMPLICIT IN THE ACTUAL
APPLICATION.

SO ELLEN IS TALKING ABOUT THIS.

>> MY NIECE WANTED THE HARRY
POTTER MOVIE AND I WAS IN TARGET
THEY DIDN'T HAVE IT.

I ALSO WENT TO WALMART AND I WAS
IN WALGREENS AND IF I WAS IN
THAT STORE AND IF THEY ALERTED
ME THEY HAD THAT MOVIE IT COULD
CUT HASTLED OF MY TIME SO IT
WOULD HAVE BEEN WONDERFUL TO
HAVE A HE REMINDER.

>> SO SECOND STHIFG EXPLICIT
AWARENESS.

WITH THIS, WE'RE REALLY AT THIS
POINT IN TIME BECAUSE PEOPLE
AREN'T AWARE WE HAVE TO USE TECH
NEXT AROUND EX MISS IT AWI ERNS.
THERE WILL BE CERTAIN THINGS
COLLECTED THAT PEOPLE DON'T
NECESSARILY UNDERSTAND HOW IT'S
ACTUALLY HELPING THEM.

SO N. THESE CASES THE BEST WAY
TO DO IT IS CURRENTLY WITH
JUSTICE IN TIME NOTICE.

SO WHAT YOU NEED THE
INFORMATION, ASK ME FOR THE
INFORMATION.

THIS CRAZY CONCEPT TO THE RIGHT
WE'RE NOT ADVOCATING FOR IT BUT
IT'S A WAY FROM A DESIGN
PERSPECTIVE YOU COULD SOLVE IT
WHICH IS POTENTIALLY A WAY TO

PLUG IN YOUR PHONE AND GET POWER WHILE IN THE STORE WITH A DART AND THEN ALL OF A SUDDEN YOU COULD SEE YOUR PHONE AND THIS IS A WAY TO OVERCOME THE ISSUE OF NO NOTICE BUT THIS WOULD BE A POTENTIAL WAY TO GIVE EXPLICIT AWARENESS.

>> AND WITH AMBIENT AWARENESS LOOKING AT THE FUTURE, AS WE SEE MORE AND MORE WEARABLES, THABILITY TO COULD MORE TACT TYPE OF THINGES COULD COME. BUT FOR TODAY RIGHT NOW WHERE WE'RE AT IT'S MORE ABOUT VISUAL SIGNS AND SCREENS. AND AUDITORY MIGHT HELP IN THE FUTURE AS WELL.

>> AND THIS ISN'T EASY. THIS IS SOMETHING THAT IS GOING TO TAKE TIME.

AND SO WHAT WE HAVE BEEN WORKING ON FIRST IS IS MY DATA SYMBOL. AS WE DO EXPLICIT CAMPAIGNS, AS WE DO MORE ON IM POLICIVE AWARENESS AT SOME POINT WE HAVE TO CONTINUE TO REINFORCE THIS AND WE WOULD LIKE THIS TO BE SOMETHING UNIVERSAL ACROSS ALL DATA COLLECTION.

THE GOAL WAS TO COMMUNITY TO PEOPLE INFORMATION WAS BEING COLLECTED AND TRANSMITTED. WE WANTED TO BE SURE IT WAS FLEXIBLE FOR ALL SCREENS AND SIGNAGE AND WE'RE JUST AWARE THAT WE'RE NOT GOING TO GET THIS IMMEDIATE AWARENESS.

IF YOU LOOK AT THE WHEELCHAIR IMAGE, THAT'S A CLASSIC ICON. IT TILZ YOU WITHOUT WORDS WHAT THE MEANS.

IT'S NOT SOMETHING THAT IS GONE IN I ICON WORLD.

AND THIS RECYCLE ICON, IT DOESN'T EXPLAIN WHAT IT IS BUT YOU HAD TO EXPLAIN IT AT FIRST SO THAT PEOPLE RECOGNIZE IT AND UNDERSTOOD WHAT IT MEANS.

IT'S A PROCESS WE HAVE TESTIFIED OVER 300 SYMBOLS TO DATE AND WE'RE STILL NOT THERE.

I WILL SHOW YOU AT A HIGH LEVEL WHAT WE'RE LOOKING AT AND THE FEEDBACK THAT WE'RE GETTING FROM CONSUMERS.

THESE ARE THE MULTIPLE OF DIFFERENT CONCEPTS THAT WE'RE LOOKING AT.

OVER 300 CONCEPTS THAT WE LOOK AT TO GET TO THE POINT WE'RE AT RIGHT NOW.

SO WHAT WE DID, WE TAKE THIS AND

WE ASK PEOPLE LOOK AT THIS AND
TELL US WHAT RUE THINK IT MEANS.
WE DON'T TELL THEM ABOUT DATA
TRACKING.
WE'RE SEEING OVERALL AND GIVE
THEM A LIST, SOME WORDS ACTUALLY
DO APPLY AND SOME DON'T.
AND WE'RE STARTING TO SEE
TRACTION HE EVER.
WE'RE GETTING UP TO 55% WHEN IT
COMES TO SENDING AND
TRANSMITTING, BUT MY DATA IS A
STILL DOWN AT 32%.
HAVING PEOPLE UNDERSTAND THAT
THIS IS MY DATA BEING
TRANSMITTED IS DIFFICULT.
WHEN WE LOOK AT CONTROL HERE
WE'RE SEEING OVER 70% AND THAT'S
OUR GOAL SO WE WILL CONTINUE TO
ITERATE AND TRY TO GET THERE BUT
AT THE END OF THE DAY THIS IS A
PROCESS THAT WE HAVE TO ALL GO
THROUGH.
WE WILL NOT WAKE UP TOMORROW AND
HAVE PEOPLE AWARE.
BUT IF HE COULD GET TO A POINT
CREATE THESE IMPLICIT AWARENESS
APPLICATIONS AND CREATE HAD A
NEW ENVIRONMENT WHERE PEOPLE ARE
GETTING VALUE FOR GIVING THEIR
INFORMATION AND REINFORCING IN A
WAY THEY'RE AWARE IT'S HAPPENING
AND THEY CARE WENT IT THEY CAN
CONTROL IT.
IF THEY DON'T CARE ABOUT IT,
IT'S NOT GETTING IN THE WAY.
>> THANK YOU.
WE HAVE BEEN GETTING SEVERAL
QUESTIONS FROM THE AUDIENCE AND
SAY THEY HAVE BEEN ABOUT NOTICE
AND AWARENESS AND I WANT TO TALK
ABOUT THAT AND HOW IMPORTANT
TRANSPARENCY IS.
WE WILL START CORRECTING A
QUESTION TO MALLORY AND ASK HOW
YOU AND YOUR MEMBER VERSE
THOUGHT ABOUT PROVIDING NOTICE
AND CREATING AWARENESS AROUND
THIS TYPE OF MOBILE DEVICE
TRACK.
>> SURE.
THAT'S 45 GOOD QUESTION.
AS I IN THE BEGIN BEING IT'S
ABOUT WHAT IS NECESSARY TO
PRESERVE THE LEVEL OF TRUST WITH
YOUR CUSTOMER.
LET ME GIVE YOU ONE EASY EXAMPLE
AND I THINK WE WILL MAKE IT
CLEAR.
THAT'S LOT OF DISCUSSION IN THIS
FIELD ABOUT TALKING ABOUT
TRACKING.
ONE COULD JUST AS EASILY

SUBSTITUTE THE WORD OBSERVING IT AND SOUNDS LESS SCARY.

AND THE QUESTION IS, DO YOU HAVE TO GIVE NOTICE FOR OBSERVATION? ONE EXAMPLE IS THE USE OF HEAT MAPS.

BOTH GENTLEMEN HERE SHOW HEAT MAPS THAT SHOW HOW GROUPS OF PEOPLE MOVE AROUND IN A A STORE. YOU CAN HAVE A SITUATION IN A GROCERY STORE WHERE MOST OF US SHOP, WE GO TO THE PRODUCE AND END UP BUYING FROZEN FOOD AT THE END OF THE TRANSACTION.

IF YOU HAVE HEAT MAP OBSERVATION OF THE FLOW OF YOUR STORE AND SEE AN NEUCIALTLY LARGE NUMBER OF PEOPLE IN THE FROZEN FOOD SECTION, IT MEANS THEY'RE PROBABLY ABOUT TO CHECK OUT SO THE RETAILER MIGHT TAKE THAT INFORMATION AND SAY, OK, I'M GOING TO OPEN UP MORE LANES, GET MORE SALES ASSOCIATES UP FRONT TO WITH THE AMOUNT OF TIME IT TAKES PEOPLE TO CHECK OUT IS SHORTER THAN IT WOULD BE OTHERWISE.

NOW THAT'S, I WOULD ARGUE, IS IT A BENEFIT TO CONSUMERS BUT NOT NECESSARILY SOMETHING THAT YOU'RE GOING TO PROVIDE NOTICE ABOUT BECAUSE IT'S ALMOST INTRINSICALLY GOOD MANAGEMENT OF THE STORE OPERATION.

THERE'S AN APAIRNS CONFLICT BETWEEN ONLINE STORES AND BRICK AND MORTAR STORES.

ONE OF THE THINGS THE CUSTOMERS LIKING IN THE ONLINE WORLD IS THEY CAN VERY QUICKLY ACCOMPLISH THEIR SHOPPING AND.

ONLINE STORES HAVE MOVED TO ONE CLICK CHECK OUT.

IF THE BRICK AND MORTAR ENVIRONMENT IF WE'RE GOING TO COMPETE IN THAT AREA THOSE STORES WOULD LIKE TO REPLICATE THAT VERY FAST CLICK THROUGH CHECK OUT WHICH MEANS PUTTING MORE SALES ASSOCIATES ON THE LINE GETTING CUSTOMERS OUT OF THERE SO IN THE BRICK AND MORTAR ENVIRONMENT YOU HAVE THE PERSONAL INTERACTION OF GETTING QUESTIONS ANSWER EVERYDAY QUICKLY AND COMBINED THAT WITH THE QUICK CHECK OUT WHICH LETS THE BRICK AND MORTAR STORES COMPETE MORE EFFECTIVELY WITH THE ONLINE STORE.

ALL OF THIS IS PART OF THE COMP TIGHTS.

ALL GOES TO BUILDING CONSUMER TRUST.

NONE OF IT REQUIRES NOTICE.

>> MALTRY CAN I ASK YOU TO FOLLOW UP ON THAT?

ONE OF THE THINGS THAT WE HAVE COME TO UNDERSTAND IS THAT CONSUMERS BASICALLY UNDERSTAND WHEN THEY ENTER A RETAIL ENVIRONMENT THAT THERE'S BEEN LOSS PREVENTION SURVEILLANCE TECH NEEPTION USED FOR YEARS AND WE HAVE COME TO BELIEVE THAT THAT IS A COMMON AWARENESS AND UNDERSTANDING AMONG CONSUMERS WHEN THEY ENTER MOST RETAIL ENVIRONMENTS THAT THAT IS PART OF THE APPROACH THAT RETAILERS ARE TAKING AND NOT TO MENTION THAT ONCE THEY DO CHECK OUT AND ACTUALLY BUY SOMETHING, ALL OF THAT DATA IS PARTICIPANT OF THEIR RECORD PERMDNENTLY AS WELL SO DO YOU THINK THAT THERE'S ALREADY A HIGH DEGREE OF AWARENESS AMONG CONSUMERS ABOUT THESE TYPES OF THINGS.

>> I CAN'T SAY WHAT THE AWARENESS IS FOR ANY SPECIFIC ELEMENT THAT YOU MENTIONED AND THAT VARIES RETAIL TORRY TAILOR WHICH S. WHAT MAKES COMPETITION AND POSSIBLE FOR RETAILERS TO GARNER TRUST WITH THEIR PARTICULAR SET OF CUSTOMERS BUT BY IN LARGE OF THE FACT THAT YOU'RE ENGAGING IN OBSERVABLE ACTIVITY IN A STORE IS SOMETHING THAT PEOPLE ARE AWARE OF. NOW IN TERMS OF THE DETAILS OF THE TRANSACTION THAT WILL VARY DRAMATICALLY FROM ONE RETAIL TORE ANOTHER IN SOME IT'S AN ANONYMOUS TRANSACTION. IN OTHERS IF YOU OPTED INTO A LOYALTY PROGRAM IT MAY BE MUCH MORE DETAILED SO IT VARIES TROAMSLY.

>> IS THERE A PART THAT REQUIRES NOTICE?

>> I FEEL LIKE HEARING ALL OF THIS I HAVE QUITE A DIFFERENT PARADIGM BECAUSE THERE'S BEEN A LOT OF FOCUS IN THIS CONVERSATION ON NOTICE. AND NOT A FOCUS ON CONSENT AND NOT A FOCUS ON WHETHER THERE'S AN UNDERLYING PROBLEM WITH THE POSSIBILITY OF TRACKING OCCURRING WITHOUT PEOPLE ASKING FOR IT.

AND SO I WOULD START MUCH EARLIER IN THE PROCESS AND,

RATHER THAN CRITICIZE PEOPLE ON THIS PANEL I WOULD CRITICIZE THE STANDARDS COMMITTEE AND SAY, WHY DID YOU PUT A PERSISTENT UNIQUE IDENTIFIER INTO PEOPLE'S PHONES NO WHY DIDN'T YOU RECOGNIZE PEOPLE'S PRIVATE AND SECURITY INTEREST IN NOT HAVING SOMETHING IN THEIR POCKET SHOUTING WHERE THEY ARE TO EVERYONE WHO SETS UP A LAPTOP TO LOOK AT THEM.

THERE'S THIS CONVERSATION THAT WE HAVE BEEN HAVING ABOUT IF A RETAILER PUTS THIS UP FOR A PARTICULAR PURPOSE THERE'S A QUESTION OF HOW APPROPRIATE IS THEIR PURPOSE OR HOW INVASIVE IS THAT OR STATISTICAL INFORMATION IS NOT INVASIVE COMPARED TO PROFILING -- BUT I WOULD START EARLIER AND SAY, WHY ARE THESE DEVICES SCREAMING AN IDENTIFIER TO ALL AND SUNDRY IN THE RF ENVIRONMENT AND SAYING, IT'S ASHKAN'S PHONE, IT'S ASHKAN'S PHONE, IT'S ASHKAN'S PHONE. WHY DID THE STANDARDS COMMITTEES MAKE THESE IDENTIFIERS UNCHANGING AND PERSISTENT? THAT'S REALLY WHERE I WOULD START.

NOW I THINK THERE'S A LOT OF MERIT IN SAYING WELL IN THE CONTEXT OF A PARTICULAR RETAIL USE, IT'S NOT NECESSARILY WHAT PEOPLE ARE EXPECTING OR NOT NECESSARILY SOMETHING THAT THEY HAVE CONSENTED TO.

IF YOU ASKED THEM IN A SURVEY THEY WOULDN'T NECESSARILY KNOW THAT IT WAS HAPPENING OR THAT IT WAS PHYSICALLY POSSIBLE OR HOW IT WAS DONE BUT FOR CERTAIN CATEGORIES OF USE THERE'S NOT A LOT OF HARM AND THERE MAY ABOUT BENEFIT IN THAT INSTANCE.

SO FROM THE PERSPECTIVE OF THE INDIVIDUAL RETAILER OR THE PEPPER OF THE INDIVIDUAL RETAIL INDUSTRY OR THE PEOPLE DOING THIS FOR STATISTICAL PURPOSES THEY OK SAY GIVEN THE TECHNOLOGY IS THERE AND GIVEN THIS IS POSSIBLE AND GIVEN THAT WE'RE TRYING TO DO THIS IN A RELATIVELY NONINVASIVE WAY, YOU SHOULDN'T BLAME US SO I'M GOING TO PROVISIONALLY GRANT THAT AND SAY LET'S BLAME THE TECHNOLOGY INDUSTRY FOR PUTTING THESE UNIQUE IDENTIFIERS THAT CAN BE READ WITHOUT CONSENT BY

TRAI DGESSERS WI RELESSLY WI THOUT
PEOPLE' S AWARENESS IN ANY
SITUATION FOR ANY PURPOSE INTO
THINGS THAT PEOPLE ARE CARRYING
AROUND ALL DAY IN THEIR POCKETS.

>> GREAT.

THANK YOU.

SO GLENN AND JIM, I THINK ONE OF
THE THINGS THAT WE WANTED TO
HEAR A LITTLE BIT ABOUT IS YOUR
XCH' S THOUGHTS ON ARE THERE WAYS
THAT YOUR COMPANIES ARE THE
WORKING TO CREATE TRANSPARENCY
AROUND OF THE USE OF THIS
INFORMATION.

>> I WANT TO ANSWER THAT BUT I
WANT TO MAKE A CLEAR DISTINCTION
AND THERE' S A LOT OF MARKET
CONFUSION, I SPEND A LOT OF TIME
SPEAKING WITH CLIENTS AND
POTENTIAL CLIENTS ABOUT THE
CONFUSION THAT IS -- THAT
THERE' S APPLICATIONS THAT ARE ON
A DEVICE THAT A PERSON DOWNLOADS
AND AS PART OF THAT ACCEPTS
CERTAIN TERMS AND CONDITIONS
THAT WE ALL UPS THAT

99.9 PERCENT OF PEOPLE ARE NOT
READING BUT THOSE ARE ACCEPTED
AND IT' S THOSE APPLICATIONS THAT
ARE, IN ASHKAN' S PRESENTATION
DEMONSTRATED IT, THAT THE PAN
DORR AAPP IS STREAMING
INFORMATION ABOUT THE DEVICE OR
THEPERSON AND DIFFERENT THINGS
ON THOSE DEVICES TO DIFFERENT
PARTIES AND THE OTHER
PRESENTATION ONE OF THE VIDEOS
WAS I HAVE PERM PHOTOS ON MY
PHONE AND I DON' T THINK THOSE
SHOULD BE SHARED.

WE AGREE 100 PERCENT.

THERE' S A DIFFERENCE IN
MONI TORING, OBSERVING, TRACKING
OF SOMETHING FROM AN APPLI CATION
THAT IS ON A DEVICE THAT YOU ARE
USING VERSES A DEVICE BEING SEEN
OR OBSERVED AS A DOT AND THE
ANALOGY I GIVE TO OUR CLIENTS
IS, THINK OF IT AS I HAVE HAD A
BAG OF BEANS THAT I' M GOING TO
MAKE SOUP AND I POUR ALL OF THE
BEANS IN THE SOUP AND I STIR IT
ALL UP.

GO AND TELL ME WHERE I PUT THEM
IN DIFFERENT BOWLS BUT YOU DON' T
KNOW WHICH BEAN CAME FROM WHAT
AND WE DON' T COMPARE.

WHAT WE CARE ABOUT IS THE FACT
THE BEANS ARE HERE HERE AND WE
KNOW THERE' S SOME HERE AND HERE
AND SOME NEVER GOT OUT OF THE
POT BUT WE' RE NOT NECESSARILY

CONCERNED ABOUT WHAT BEAN IS
WHAT IS WHO WE'RE GOING TO
ASSOCIATE THAT BE.
WITH.
WE'RE NOT INTERESTED IN
INDIVIDUAL CONSUMERS AND THERE'S
NO TECHNOLOGICAL WAY TO TAKE A
MAC ADDRESS AND DETERMINE OR GO
INTO A DEVICE, THERE'S NO
CONNECTION MAIDS TO A DEVICE.
N. AN POLITICS THERE'S A
CONNECTION AND THAT LOUDS IT TO
OBTAIN INFORMATION.
WE DON'T DO THAT THERE ANY WAY,
SHAPE, OR FORM.
A PHONE CALLS OUT, A MOBILE
DEVICE CALLS OUT AND SAYS, YES,
I'M HERE, WE HAVE SEE A NUMBER
LIKE YOUR VEHICLE IDENTIFICATION
NUMBER.
WE JUST KNOW IT'S A CARD.
WE MIGHT KNOW IT'S A FORD CAR
OR iPHONE.
BUT THAT'S IT.
WE DON'T KNOW IT'S ASHKAN'S
PHONE.
SO THERE NEEDS TO BE A
DISTINCTION THAT WE ARE NOT
MONITORING OR TRACKING ANY OF
THAT APPLICATION DATA.
WE ARE TAKING THE DATA THAT IS
COMPLETELY ALMOST IRRELEVANT
BECAUSE IT CAN'T BE -- THERE'S
NO CONNECTION MADE TO A DEVICE
TO CAPTURE ANY INFORMATION AS
ALL OR SEE WHAT YOU'RE LOOKING
AT OR ANY PAYLOAD DATA OR
ANYTHING ALONG THOSE LINES AND
THERE NEEDS TO BE THAT
DISTINCTION IN THAT REGARD.
AND TO MALLORY'S POINT THERE'S A
LOT AMOUNT OF TRUST RETAILERS
HAVE WITH THEIR CLIENTS OR WITH
THEIR CUSTOMERS INHERENTLY.
RETAILERS WANT TO UNDERSTAND
SOMEWHAT HAPPENING SO THEY CAN
HELP MAKE THE CUSTOMER
EXPERIENCE BETTER.
THEY'RE NOT INTERESTED IN ANY
WAY, SHAPE OR FORM OF UPSETTING
THE APPLE CART OF THE TRUST THAT
THEY HAVE SPENT YEARS BUILDING
WITH CONSUMERS TO MAKE THEM
LOCAL CUSTOMERS.
A RETAILER WOULD NEVER THEN TAKE
THAT AND SAY, WELL, NOW LET'S
START TO TRY TO IDENTIFY,
WITHOUT PEOPLE KNOW BEING, LET'S
IDENTIFY WHO THESE PEOPLE ARE SO
WE CAN DO SOMETHING THAT IS
GOING TO DEGRADE THAT LEVEL OF
TRUST THAT WE SPENT YEARS
BUILDING.

SO IT'S NOT APPLICATION BASED AND COMPLETELY SEPARATE TO THAT. THERE'S NEVER A COAX MADE TO A MOBILE DEVICE AT ALL BY ANYBODY IN THE INDUSTRY AND SECONDLY INHERENTLY THERE'S A LEVEL OF TRUST THAT RETAILERS ARE ADAMANT ABOUT PROTECTING AND THEY WANT TO MAKE SURE THAT THAT IS BEING PROTECTED AND THEY'RE NOT GOING TO DO SOMETHING TO UPSET THAT I HOPE I ANSWER ERDZ THE QUESTION. I PROBABLY GOT OFF TRACK.

>> LET ME ADD TO WHAT GLENN WAS SAYING.

I AGREE WITH HIS POINTS BUT I DO THINK THAT THERE WAS A QUESTION ABOUT WHAT ARE THE COMPANIES DOING SPECIFICALLY TO HELP WITH DISCLOSURE AND AWARENESS.

WE AS AN INDUSTRY IN GLENN'S COMPANY AND MY COMPANY AND A DOESEN OTHERS HAVE BEEN PARTICIPATING IN WHAT WE CALL A CODE OF CONDUCT ACROSS THE INDUSTRY THAT ESSENTIALLY ESTABLISHES GUIDELINES.

AND IN MANY CASES THERE ARE ASPECTS OF THIS THAT WE HAVE AGREED ARE LEGALLY BINDING ON THE COMPANIES THAT ARE INVOLVED. WE RECOGNIZE THIS IS AN EVOLVING MARKETPLACE AND TECHNOLOGY IS EVOLVING QUICKLY IS AND WE CAN'T LET GOOD WITH THE ENEMY OF PERFECT OR VICE VERSA AND IT'S IMPORTANT THAT WE KNOW THIS TO IS ONE STEP IN A CONTINUOUSLY EVOLVING PROCESS BUT THE KEER PRINCIPALS ARE, FIRST OF ALL, WE WILL DO EVERYTHING WE CAN TO CREATE THAT LEVEL OF TRANSPARENCY AND DISCLOSURE AND WE'RE ASKING RETAILERS TO PROVIDE SIGNAGE.

TO ILANA'S POINT IS THAT THERE'S LITTLE SIGNAGE, WE NEED TO COME TOGETHER AS AN INDUSTRY AND WORKING AND TRYING TO CREATE A, CREATE SOME TYPE OF VISUAL CUE SO THAT THEY WILL HAVE THAT.

WE DON'T BELIEVE TODAY IS CONSUMER IS GOING TO WALK IN AND KNOW THAT THAT MEANS.

WHEN THAT IS SPREAD ACROSS TENS OF THOUSANDS OF STORES AND CONSUMERS SEE THAT IT WILL BECOME A VISUAL CUE THAT WILL TELL PEOPLE SOMEWHAT GOING ON SO THAT'S A STEP ALONG THE WAY FROM A DISCLOSURE STANDPOINT.

>> WE'RE ALSO PUTTING IT ON OUR WEB SITES WHAT WE'RE DOING.

WE' RE DOING THE BEST GIVEN THE CURRENT METHODOLOGIES AVAI LABLE TO US TO DISCLOSE AS AN INDUSTRY. THE SECOND IS THAT WE' RE PROVIDING CHOICE TO THE CONSUMER AND WHAT IS REALLY IMPORTANT TO IS THAT, IF A CONSUMER DOES NOT WANT THEIR DEVICE TO BE SEEN, EVEN THOUGH WE' RE ONLY AGGREGATING AND PROVIDING STATISTICAL INSIGHTS, THAT CONSUMER AN ABILITY AS OF NOW TO OPT OUT AND NOT ONLY TO OPT OUT WITH OUR COMPANY OR A PARTICULAR RETAILER BUT TO BE ABLE TO OPT OUT OF HAVING THEIR DEVICE SEEN ACROSS THE INDUSTRY. SO WE ANNOUNCED YES, I DID, WITH OUR AGREE, IN ADDITION TO THE CODE THAT WE HAVE LAUNCHED AN OPT OUT CAPABILITY AND WE HAVE DONE THIS WITH A COMPANY CALLED THE WIRELESS REGISTRY AND THEY CREATED THE CODE. WE' RE ALLOWING CONSUMERS TO OPT OUT ACROSS THE INDUSTRY. THAT WILL BE ACTIVE WITHIN 30 DAYS SO WE WILL ALLOW CONSUMERS TO OPT OUT. WE HAVE A VARIETY OF OTHER ASPECTS OF THE CODE, SOME ABOUT HASHING AND PREVENTING US FROM BASICALLY COLLECTING THE ACTUAL MAC ADDRESSES AND STORING THOSE SO WE ALL AGREE THAT WE WILL HASH. I UNDERSTAND ASHKAN' S POINT THAT IT' S NOT IMPOSSIBLE FOR THAT TO BE USED IN OTHER WAYS BUT THEN FOR ALL PRACTICAL PURPOSES, WE DON' T BELIEVE THAT THAT IS A REALITY ANY TIME IN THE FORESEEABLE FUTURE. FOR RIGHT NOW WHAT IS IMPORTANT IS THAT, YOU KNOW, THAT WE MOVE FORWARD WITH THAT AND I THINK IT' S ALSO IMPORTANT THAT WE HOLD NOT ONLY OURSELVES BUT OUR CLIENTS ACCOUNTABLE TO THE USE OF THE DATA SO THAT WE HAVE WITHIN THE CODE AND SO THE DATA IS NOT REDISTRIBUTED TO SOMEONE ELSE OR AGGREGATED WITH OTHER INFORMATION THAT COULD BE USED TO PERSONALLY IDENTIFY THE INDIVIDUAL SO WE' RE TRYING AS AN INDUSTRY TO BE GOOD ACTORS, WE' RE DISCLOSING THIS AND DOING EVERYTHING WE CAN TO COMMUNICATE THIS ACROSS THE STREET RIGHT NOW. >> I WOULD LIKE TO JUMP IN HERE

BECAUSE I WAS CONCERNED WHEN YOU MENTIONED THIS IS A BAD THING, THAT YOU'RE HAVING YOUR ADDRESS PUT OUT THERE.

I THINK FROM A CONSUMERS PERSPECTIVE THERE'S A LOT OF VALUE THEY CAN GET.

I MEAN BEING ABLE TO WALK IN THE STORE AND HAVE IT KNOW YOU AND WHAT YOU LIKE AND RECOMMEND THINGS TO YOU --

>> YOU SHOULD INSTALL AN APP FOR THAT STORE AND SAY WHEN I GO TO THIS STORE, RATHER THAN HAVE YOUR PHONE DO THAT FOR YOU WITHOUT CONSENT FOR EVERY KIND OF ENTITY THAT COULD BE LISTEN.

>> THERE COULD BE WAYS OF GOING ABOUT IT BUT TO SHUT DOWN THE ABILITY TO PERSONALLY IDENTIFY EACHERN AND DELIVER VALUE TO ME THAT I WANT, IN THE FUTURE, THAT MIGHT BE BENEFICIAL TO CONSUMERS.

THEY MIGHT LIKE THAT.

SO, YES, YOU KNOW, VERY INTERESTING THAT TRANSPARENCY MAKING SURE THEY'RE AWARE IS IMPORTANT.

HAVING THAT CONTROL IS VERY IMPORTANT.

BUT AT THE END OF THE DAY DO RETAILERS WANT THEIR CUSTOMERS TO BE ANGRY WITH THEM?

I DON'T THINK SO.

I WOULD HATE TO SEE THAT SHUT DOWN.

IT HAS TO BE IN A WAY THAT CREATES TRUST.

THERE ARE GOOD WAYS AND BAD WAYS TO DO IT BUT TO SHOULD IT DOWN I WOULD BE CONCERNED ABOUT THE.

>> I THINK IT WOULD BE FUB TO TALK ABOUT HASHING AND IT MAY BE A DIG STLACTTION FROM THE MORE FUNDAMENTAL PRIVACY ISSUES BUT I WANT TO SAY HASHING DOESN'T WORK FOR THE PURPOSE OF ACTUALLY MAKING YOURSELF NOT KNOW A MACK ADDRESS OR ACTUALLY MAKING YOURSELF UNABLE TO RISE A MAC ADDRESS OR GET THE HISTORY OF IT, AND THE BROAD POST BY ED FELTON AT ASHKAN POINTED TO GOES INTO THIS.

THE SPACE OF POSSIBLE MAC ADDRESSES IS TO SMILE AND AS ASHKAN ALLUDED TO, YOU COULD BASICALLY TRY EVERY MACK ADDRESS AND PUT TO THE HASH AND SEE IF THERE'S THAT ONE.

SO I WANT TO ISSUE A CHALLENGE TO THE INDUSTRY IF PEOPLE THINK

THAT MAC ADDRESSES ARE SOMEHOW NOT REALLY IDENTIFIABLE, I WANT YOU TO SEND ME A COUPLE OF HASH MAC ADDRESSES OF ACTUAL MOBILE DEVICES, TELL ME WHAT THE HASHING ALGORITHM WAS AND I WILL CRACK THEM AND TELL YOU WHAT THE MAC ADDRESSES WERE.

I DON'T THINK IT'S TECHNICALLY CHALLENGING TO DO SO. THE SPACE OF MACK ADDRESSES IS TOO SMALL TO MAKE THAT DIFFICULT TO CRACK.

>> AND IF THAT WAS DONE, WHAT WOULD BE THE USE OF THE MAC ADDRESS, BECAUSE THAT STILL DOESN'T ENCOMPASS ANY PERSONALLY IDENTIFIABLE INFORMATION.

IT WOULD BE SOMETHING THAT IS IDENTIFIABLE TO A DEVICE SO YOU KNOW, WE -- AS I SAID, WE TRY TO LOOK AT THIS THROUGH THE FILTER OF PRACTICALITY, AND IS THERE SOME -- SOME USE THAT COULD ACTUALLY BE BELONG FLEE HARMFUL TO CONSUMERS IF YOU WERE ABLE TO GO THROUGH THIS PROCESS AND TAKE THE TIME AND COMPOSITE AND RESOURCES TO GO AND FIND THE MAC ADDRESS?

>> I THINK THE TIME AND COST IN RESOURCES IS ABOUT A WEEK IN TIME ON ONE LAPTOP AND I HOPE PEOPLE WILL TAKE ME UP ON THIS CHALLENGE BECAUSE I WILL DO IT AND SHOW IT'S A REAL POSSIBILITY.

AND I'M NOT GOING TO USE A SUPERCOMPUTER.

I'M GOING TO USE IT ON MY LAPTOP.

THAT'S MY EXPECTATION.

THERE'S BEEN A WHOLE ACADEMIC FIELD IN WITHIN COMPUTER SCIENCE TALKING ABOUT THE ANONYMIZATION OF DATA SO PEOPLE HAVE CERTAIN INTUITIONS ABOUT SOMETHING BEING ANONYMOUS AND YOU'RE STARTING OF AT A POINT AND SAYING THAT'S NOT SOMEONE'S NAME SO I DON'T KNOW WHO THAT IS.

ONE OF THE UNDERLYING DIFFICULTIES IS THAT YOU HAVE SOMETHING THAT, ALTHOUGH IT'S NOT SOMEONE'S NAME IS UNIQUE. AND IT'S UNIQUE IN ALL OF THE WORLD AS A MAC ADDRESS IS. SO IF HAVE YOU SOME CIRCUMSTANCE WHERE YOU HAVE OPPORTUNITY TO OBSERVE THAT THING OR SOME DATABASE THAT CONTAINS THAT THING, ALONG WITH OTHER DATA, THEN THAT CAN BE COMPLIANT AND

WE LIKE TO SAY THAT
DEANONYMIZATION IS A ONE-WAY
STREET.

YOU THINK GO DOWN THE
DENON-MI ZEATION STREET AND THAT
HAS BEEN LOST.

I KNOW WITH THE CODE OF CONDUCT
THE PART OF THE INDUSTRY THAT IS
REPRESENTED HERE IS SOLICITOUS
ABOUT. IDEA THAT THEY DON'T WANT
TO KNOW WHO YOU ARE AND WILL NOT
MAKE EFFORTS TO KNOW WHO YOU
ARE.

I THINK ASHKAN'S PRESENTATION
REFERRING TO THE CVS APP POINTED
TO THE FACT THERE ARE A LOT OF
PRESSURES TO DO THAT AND A LOT
OF COMPANIES WILL BE INTERESTED
IN DOING THAT AND MAY NOT BE
COMPANIES THAT SEAL THEMSELVES
RAS PART OF THIS PARTICULAR
ANALYTICS INDUSTRY OR SEE THE
CODE OF CONDUCT AS RELEVANT TO
THEM BUT ASHKAN HAS ALREADY
DEMONSTRATED ON THIS SLIDE THAT
THERE ARE COMPANIES SELECTING
MAC ADDRESSES FROM WITHIN APPS
AND THOSE COMPANIES ABSOLUTELY
WILL KNOW THE IDENTITY IN THE
CLASSIC SENSE OF THE PERSON TO
WHOM THAT MAC ADDRESS RELATES
AND THEY'RE MAKING THOSE
ASSOCIATIONS BECAUSE THEY'RE
INTERESTED FOR THEIR COMMERCIAL
REASONS OR WHATEVER REASONS AND
THOSE ASSOCIATIONS TECHNICALLY
ARE VERY EASY FOR APP DEVELOPERS
TO MAKE IF THEY'RE INTERESTED IN
DOING IT.

SO THERE'S A PROSPECT AND IT'S
NOT A PROSPECT AGAIN THESE
COMPANIES ON THIS PANEL ARE
INTERESTED IN DOING FOR THEIR
BUSINESS PURPOSES PUT IT'S AN
ASPECT OTHER PARTS OF THE
INDUSTRY WILL BE INTERESTED IN,
WHICH IS CONVERGING DIFFERENT
TYPES OF ANALYTICS AND DATA SETS
AND SAYING, WELL, IF WE HAD THE
ABILITY TO KNOW YOUR OFFLINE
IDENTITY AND ONLINE AND HOW THEY
RELATE WHY WOULDN'T WE DO THAT,
AND AGAIN THESE PEOPLE ON THE
PANEL HAVE BUSINESSES THAT DON'T
RELY ON THAT AND I THINK THAT IS
GREAT.

BUT I THINK THERE ARE OTHER
PARTS OF THE INDUSTRY THAT SAY
IF WE HAVE THAT CAPABILITY TO
MAKE THOSE ASSOCIATIONS, WHY
NOT?

>> WELL, I GUESS I GET
CONCERNED, TOO, WHEN I THINK

ABOUT THE POTENTIAL FOR DATA AND COLLECTION AND ANALYTICS BEING GOOD OR BAD.

DATA IN ITSELF ISN'T GOOD OR BAD.

ANALYTICS ISN'T GOOD OR BAD.

IT'S HOW IT'S USED AND WE DID AN INTERESTING SURVEY WHERE WE ASKED PEOPLE, SAY A CHILD IS TRACKED FROM 5 YEARS OLD ON. EVERYTHING THEY DID FOR SCHOOL WAS PUT OUT THERE AND ANALYZED AND SAY THERE WAS ALGORITHMS THAT WERE WRITTEN -- THIS IS HYPOTHETICAL -- TO FIGURE OUT THAT KIDS WHO SPELL POORLY AND LIKE THE HAMP CENTER DANCE AT YOUTUBE WOULD DO BETTER AT THE UCLA THAN UNIVERSITY OF MICHIGAN.

SAY PARENTS COULD HAVE THAT INFORMATION TO FIGURE OUT WHICH SCHOOL YOU KID SHOULD APPLY TO. PEOPLE LOVE THE IDEA.

>> WE ASK THE SAME QUESTIONS WHAT IF SCHOOLS USED THAT ADMIT THE STUDENTS, PEOPLE HATED THE IDEA.

SO THE ALGORITHM ISN'T BAD.

IT'S THE CONCERNS ME THAT WE'RE LIMITING OURSELVES IN THE FUTURE FOR WHAT COULD HAVE BEEN INNOVATION.

THERE ARE BOUNDARIES.

PEOPLE CARE, RIGHT AND WE HAVE TO MAKE SURE THAT'S WE UNDERSTAND THOSE IN THAT CONTEXT AND DECIDE WITHIN IT BUT JUST TO SHUT IT OFF AND SAY WE SHOULDN'T BE DOING THIS AND EVERYONE WANTS TO BE ANONYMOUS LIMITS OF FUTURE OF GIVING MORE VALUE TO PEOPLE SO IT'S CONCERNS US.

>> THE PRIVACY COMMUNITY HAS 45 CONSENT MODEL WHERE THE DISTINCTION IS CONSENT AND THE DEFAULT FOR THE PRIVACY COMMUNITY IS THAT PEOPLE DON'T KNOW SENSITIVE PERSONAL INFORMATION ABOUT YOU UNLESS YOU DECIDE TO SHARE IT WITH THEM FOR PURPOSES THAT YOU UNDERSTAND.

AND I THINK THAT'S A GOOD NORM AND AN APPROPRIATE NORM AND IT'S NOT A NORM THAT VERY MANY AREAS OF TECHNOLOGY ARE RESPECTING TODAY, WHETHER THIS AREA OF TECHNOLOGY OR OTHERS.

>> SO YOU HAVE TO MAKE YOUR CONSUMERS AWARE.

YOU NEED THAT TRANSPARENCY. THEY DON'T LIKE TO BE SUPPLIESED.

THEY LIKE TO KNOW WHAT IS HAPPENING AND THEY DO WANT TO HAVE CHOICE IF THEY CARE. BUT THE IDEA THAT EVERYONE WANTS TO BE ANONYMOUS AND NOTHING SHOULD BE COLLECTED, THAT'S OUR CONCERN.

>> IF YOU HAVE SOMEONE THAT REALIZES SOME DAY THEY DIDN'T WANT SOMETHING TO BE KNOWN FROM, SAY, A YEAR AGO, BUT THEY DIDN'T EVEN REALIZE TECHNOLOGICALLY COULD BE KNOWN IT'S A BIT LATE TO GO BACK AND ERASE THAT DATA, WHICH IS CONSIDERED THE PROPERTY OF THE PERSON THAT OBSERVED IT. IT'S LATE FOR THEM TO GO BACK AND SAY OH, I DIDN'T KNOW THAT YOU COULD KNOW THAT ABOUT ME WHAT I DID A YEAR AGO, WHO I WAS WITH, WHAT I WAS DOING, NOW I REGRET IT AND I WANT YOU TO RERACE IT, NOW IT'S A LITTLE LATE FOR THAT.

>> I THINK EVERYBODY HAS MADE GREAT POINTS ABOUT THE DIFFERENCES, YOU KNOW, IF THIS INFORMATION WERE TO BECOME IDENTIFIABLE OR WHETHER IT MAY PARTLY CLOUDY IDENTIFIABLE?

>> BUT LET'S TAKE A STEP BACK FOR A MINUTE AND TALK ABOUT WHAT IS GOING ON MAINLY RIGHT NOW, WHICH SEEMS TO BE THE AGGREGATE ANALYTICS AND TRANSPARENCY AROUND THAT AND WE WANT TO FIND OUT ARE STORES USING THAT AGGREGATE ANALYTICS NOTIFYING THEIR CUSTOMERS RIGHT NOW.

>> WITH OUR CLIENTS IT'S PART OF THE CODE OF CONDUCT THEY INCORPORATE IT WITHIN SIGNAGE IN STORES AND DOING THAT IN DIFFERENT WAYS, EITHER EXISTING SIGNAGE THAT IS BEING REDONE WITH INFORMATION BEING PUT IN, OR IN OTHER WAYS THAT CUSTOMERS SERVICE -- WE HAVE HAD CONVERSATIONS WITH STORE MANAGERS THAT IF THERE'S A QUESTION THAT COMES UP WE'RE HELPING THEM TO MAKE SURE THEY CAN ADDRESS AND ANSWER THOSE QUESTIONS AS WELL.

YOU KNOW IT'S NOT -- IT'S -- THERE'S TRANSPARENCY, THEY DO WANT CONSUMERS TO UNDERSTAND AND REALIZE BUT THERE'S -- AGAIN THE DIVERSION OF THE -- OF YOU'RE COLLECTING SOMETHING PERSONAL ABOUT ME JUST BECAUSEY SEE MY MAC ADDRESS OR -- YOU KNOW, YOU CAN'T SEND AN OFFER TO A DEVICE

JUST BECAUSE YOU HAVE A MAC ADDRESS.

YOU HAVE TO HAVE SOMETHING ELSE TO DELIVER THAT AND THAT MEANS THEY OPTED IN TO IT.

SO THEY'RE COGNIZANT OF THAT BUT, THEY'RE LOOKING AT SIGNAGE AND PUTTING UP SIGNAGE AND WE RECOMMEND DIFFERENT SIGNAGE WHERE THERE'S A SMART STORE HOGUE OWE OR DIFFERENT THINGS AND ILANA IS WORKING TO MOVE THAT ALONG SO MORE AND NOR THAT IS BEING ATOO.ED.

>> I HAVE TO STEP IN HERE.

BECAUSE, ALTHOUGH I APPRECIATE OF THE DEBATE ABOUT THE SIGNAGE OR THE APPROACH AND THE VARIOUS ELEMENTS THAT MIGHT GO INTO THIS PROPOSED CODE, ON WATCH OF THE RETAIL INDUSTRY I HAVE TO SAY THE OVERWHELMING MAJORITY OF THE INDUSTRY IS NOT AT A POINT THAT WE THINK THIS CODE HAS ALL OF THE ELEMENTS THAT WE THINK ARE NECESSARY OR APPROPRIATE.

JUST USING THE EXAMPLE I GAVE EARLIER IN TERMS OF HEAT MAPPING FOR THE PURPOSES OF SHORTENING CHECK OUT LINES IT'S NOT SOMETHING THAT WE THINK S. NECESSARY TO BE OVER SIGNING AT STORES ESPECIALLY IF WE HAVE EVIDENCE THAT MOST CONSUMERS AREN'T READING MOST SIGNS ANYWAY TO SUDDENLY PROLIFERATE WHOLE BUNCHES OF NEW SIGNS EITHER FOR THIS TECHNOLOGY OR FOR OTHER TECHNOLOGY THAT IS USED TO ACCOMPLISH ESSENTIALLY THE SAME THING.

STRIKES AS A BRIDGE TOO FAR AT THIS POINT IN LIGHT OF WHAT IS ACTUALLY HAPPENING.

>> THERE'S CERTAINLY AN ISSUE WHERE IT'S -- WHERE IT'S EARLY IN THIS GAME, IT'S CONSTANTLY EVOLVING AND THE APPROACH THAT WE HAVE TAKEN WITHIN THE INDUSTRY IS, AS I SAID EARLIER, WE'RE NOT GOING TO SIT HERE TODAY AND SAY THIS CODE OR WHAT WE'RE DOING IS THE PERFECT SOLUTION BUT WE FELT THAT THERE'S A LOT OF CONFUSION OUT IN THE MARKETPLACE AND THIS IS A GOOD FIRST STEP, AND THE RETAILERS THAT WE'RE WORKING WITH, AND I HAVE HEARD THAT FROM OTHERS FROM IN THE INDUSTRY AS WELL, ARE ASKING FOR WAYS TO INFORM NOT ONLY THEIR CONSUMERS BUT EVEN THEIR EMPLOY GREASE SO

THEIR EMPLOYEES ARE AWARE OF WHAT THEY' RE DOING, AND SO WE RECOGNIZE THAT THIS IS NOT THE IDEAL PERFECT SOLUTION FOREVER AND THAT THERE MAY BE, TO MALLORY' S POINT, MANY WAYS THAT WE SHOULD BE DOING IN THE MUCH BROADER SENSE IN CONJUNCTION WITH ALL POSSIBLE TECHNOLOGIES AND CONJUNCTION WITH ALL RETAILERS BUT WHAT SOING TO SOMETHING THAT, FOR PRACTICAL PURPOSES WE COULD BE TALKING ABOUT FIVE YEARS FROM TODAY SO OUR ATTITUDE HAS BEEN, LET' S GET AS FAR AS WE CAN RIGHT NOW, LET' S GET SOMETHING OUT TO THE MARKETPLACE THAT SHOWS POSITIVE ATTEMPT AND STEPS AND WHAT KEY CAN DO TODAY AS AN INDUSTRY AND THAT HAS BEEN THE APPROACH.

>> I WOULD SAY THE BEST WAY WE SEE IS THAT IMPLICIT AWARENESS. IF WE CAN DO MORE OF THAT, CREATE THAT VALUE FOR CONSUMERS SO I HAVE AN APP FOR EXAMPLE THAT KNOWS WHERE I' M AT AND GIVES ME VALUE FOR IT. SUDDENLY IF YOU USE THAT INFORMATION TO DO HEAT MAPS AND MAKE THE LINES SHORTER ARE PEOPLE ARE HAPPY ABOUT THAT. THAT' S FINE.

THEY' RE AWARE YOU HAVE THE INFORMATION AND ARE USING IT FOR GOOD.

TRYING TO GET PEOPLE TO STOP AND PAY ATTENTION TO THINGS WILL ALWAYS BE DIFFICULT ESPECIALLY WHEN SO MUCH IS GOING ON IN THE RETAIL SPACE BUT I THINK IT COULD BE A BIN WYNN AS THE MORE FUNCTIONNALITY THAT COMES ONLINE TO HELP CONSUMERS THAT YOU TREATED AWARENESS WITHOUT NOTICE AND CREATED ENVIRONMENT THAT HELPS RETAILERS AND CONSUMERS AND WHAT HAPPENS IS THAT YOU GET THE AMBIENT NOTICE THAT IS THERE SO PEOPLE, IF IT' S PLACED MORALLY, ONCE THEY' RE AWARE IT' S HAPPENING IF THEY DARE, THEY BECOME TWAWR THAT HERE IS A STORE I DON' T WANT TO HAVE IT AND I CAN OPT OUT BUT IN GENERAL, I THINK -- I THINK THAT THE IM MISS IT AWARENESS IS THE RIGHT FIRST STEP TO TAKE.

>> MY UNDERSTANDING FROM JIM AND GLENN WAS THAT YOU ARE ALREADY TAKING STEPS TOO MAKE EXPLICIT THE NOTICES IN YOUR CURRENT LOCATION.

SO WITH YOUR RETAILERS, JIM,
THEY'RE PUTTING UP UNTIL SIGNAGE
IN THE STORES?

ARE THEY PUTTING THEM AT THE
REGISTERS ON THE WINDOWS AND
GLENN I THINK YOU WERE SAVING
THAT A LOT OF YOUR CLIENTS ARE
BIGGER CLIENTS LIKE SHOPPING
MALLS AND AIRPORTS SO DO YOU
HAVE AN EXAMPLE WHERE THAT
SIGNAGE MIGHT AND BE HOW DURUMS
MIGHT NOTICE IT.

>> WE ARE WORKING WITH RETAILERS
KNOWING WE AS AN INDUSTRY ARE
WORKING TO DEVELOP A SET OF
SIGNAGE AND VISUAL QUEUES THAT
WE ARE GOING TO CARRY ACROSS ALL
RETAILERS AND ACROSS ALL OF
THESE COMPANIES, WE HAVE BEEN
WORKING ON AN INTERIM BASIS TO
PUT SOME SIGNAGE UP BUT WE HAVE
ALSO ESSENTIALLY INFORMED OUR
RYE TAIL PARTNERS THAT WE'RE
WORKING ON SOMETHING THAT WE
WILL BE DELIVERING AND THAT IS
SOMETHING THAT IS PART OF THE
COALITION THAT WE HAVE PUT
TOGETHER AND WORKING WITH ILANA
TO DEVELOP AND IT WILL BECOME
MUCH MORE PREVALENT AS WE GET
THROUGH THIS YEAR.

>> AND WE'RE MUCH THE SAME BUT
WE HAVE SOME OF OUR CLIENTS THAT
ARE -- THEY HAVE EXISTING
SIGNAGE ON THE WALL THAT WE WILL
TALK ABOUT DIFFERENT PRIVACY
POLICIES OR CODES OF CONDUCT
THAT THE MALL OWNER OR OPERATOR
WILL ABIDE BY AND, YOU KNOW,
DIFFERENT WINGS OF A MALL AND
IT'S BEING ADDED -- IN MOST DAYS
IT'S BEING ADDED AS ONE OF THOSE
ITEMS IN THERE.

>> THANKS.

>> SO WE HAD HAVE TALKED A
LITTLE BIT ABOUT YOU KNOW
WHETHER NOTICES ARE BEING
PROVIDED WHETHER THEY MIGHT BE
PROVIDED IS AND THE QUESTION I
WANTED TO RAISE ARE WHAT ARE THE
GOALS OF THE NOTICE?
WHAT ARE THE IMPORTANT PIECES OF
INFORMATION THAT NEED TO BE
CONVEYED TO CONSUMERS?

>> YOU KNOW WHAT CONSUMERS CARE
ABOUT IS WHAT INFORMATION IS
BEING COLLECTED AND HOW IS IT
BEING USED.

SO IF YOU'RE ASKING SOMEBODY TO
MAKE A CHOICE ABOUT SOMETHING
THEY NEED TO UNDERSTAND THE
IMPLICATION.

AS YOU SAW ON THE VIDEO, IT'S

FREQUENTLY SOMETHING THEY DON'T CARE SO MUCH ABOUT OR IF IT'S BEING USED TO STREAMLINE THINGS THAT ARE OK WITH IT, THERE ARE OTHER THINGS THEY CARE ABOUT SO IF THOSE ARE COLLECTED WE WOULD BE MUCH MORE STRONGLY ADVOCATING FOR DIFFERENT TYPES OF EXPLICIT AWARENESS.

ONE THING I WOULD LIKE TO BRING UP IS THE MALL AREA AND THAT'S SOMETHING WE DIDN'T RESEARCH AND THAT WOULD BE THE NEXT STEP.

SINCE WE'RE SEEING MORE PHONES OUT IN THE MALL AREA AND SEEING MORE PEOPLE HAVING ATTENTION PAID IN THE MALL AREA THAT MIGHT ACTUALLY APPLY BE A PLACE WHERE YOU COULD GET MORE AWARENESS OF SIGNAGE.

I DON'T HAVE THE DATA RIGHT NOW SO I DON'T KNOW BUT THAT WOULD BE A NEXT STEP TO LOOK AT, IS THAT A PLACE WHERE YOU COULD PLACE THEM.

>> THE OTHER THING IS THAT THERE ARE WAYS AND WE'RE EXPERIMENTING WITH THIS, THAT THE SIGNAGE CAN ACTUALLY CONVEY A CONSUMER BENEFIT, AND SO ONE INSTANCE WHERE WE'RE DOING THIS RIGHT NOW IS IN AIRPORTS WHERE THE TSA CUES CAN BACK UP AND YOU CAN HAVE HUNDREDS OF PEOPLE IN LINE, BUT THERE COULD BE THREE DIFFERENT TSA QUEUES AT THE SAME AIRPORT.

WHAT WE'RE DOING AND WE'RE TESTING THIS IN A NUMBER OF DAYS, WE'RE USING OUR METHODOLOGY TO PUT BIG MONITORS UP AT EACH OF THE TSA CUES TO TELL THEM WHEN THEY GET THERE, WHAT IS THE WAIT TIME, IT SAYS LINE ONE 12 MINUTES AND LINE TWO IS EIGHT MINUTES AND LINE THREE IS FOUR MINUTES SO IT'S A SELF-REGULATING SYSTEM FOR CONSUMERS TO ACTUALLY BENEFIT AND SEE HOW THEY CAN SAVE TIME AT AN AIRPORT AND WE'RE USING THIS SAME APPROACH IN MANY CASES AND AS I MENTIONED IN GROCERY STORES THAT CAN BE A SIMILAR APPROACH ASSOCIATION THERE ARE SOME DIRECT BENEFITS THAT TIE INTO THE SIGNAGE AND THE DISCLOSURE.

>> THANKS.

SO ONE OF THE THINGS THAT YOU MENTIONED BEFORE IS THAT, YOU KNOW, WITH THIS CODE OF CONDUCT

THAT CONSUMERS HAVE THE ABILITY TO OPT OUT.

SO IS THAT ABILITY TO OPT OUT SOMETHING THAT IS MENTIONED IN ANY OF THE NOTICES THAT ARE BEING PUT IN STORES?

>> YES.

AS PART OF THE SIGNAGE OR VERBIAGE BEING PUT UP THERE' S A WEB SITE ADDRESS IN MOST CASES OR ALL CASES RIGHT NOW TO BE ABLE TO GO AND DO THAT.

AS ASHKAN POINTED OUT AND AS I THINK WE ALL UNDERSTAND, THAT IS NOT THE MOST SEAMLESS OR IT' S NOT THE SEAMLESS WAY TO BE ABLE TO DO IT BUT IT IS A WAY TO DO IT TO GIVE CONSUMERS THE OPTION TO DO SO.

WE HAVE ALSO HAD E-MAILS FROM PEOPLE WHO HAVE JUST SAID, I HAVE SEEN A SIGN AND HERE IS AN E-MAIL AND CAN YOU LOVE ME AND WE RESPOND AND SAY THIS HAS BEEN DONE.

SO THERE ARE WAYS TO TO IT AND THERE' S A WEB ADDRESS OR SOMETHING BEING APPLIED IN THERE.

>> I THINK WE HAVE ALL LEARNED A LOT AND THEY TESTIFIED, AS SOON AS YOU START TO TRY TO CONVEY TOO MANY MESSAGES WITH TOO MUCH DISMVTION TOO MANY WORDS ON A SIGN, YOU ESSENTIALLY LOSE THE CHANCE OF ACTUALLY COMMUNICATING EFFECTIVELY.

SO WHAT WE' RE TRYING TOO TOO IS MINIMIZE THE AMOUNT OF TEXT, MAXIMIZE THE VISUAL IMPACT AS WELL AS GIVING VERY EASY WAY FOR CONSUMERS TO KNOW WHERE TO GO TO FIND THAT INFORMATION.

>> OKAY.

WE HAVE GOTTEN A LOT OF QUESTIONS ABOUT WHERE PEOPLE CAN FIND THE CODE ONLINE.

I DON' T KNOW IF ANY OF YOU HAS A URL WITH YOU THAT WE CAN PROVIDE BUT WE WOULD LIKE TO BE ABLE TO DO THAT.

AND IF ONE OF YOU CAN TALK ABOUT HOW THE OPT OUT ACTUALLY WORKS, HOW HAD CONSUMERS ACCESS IT ONCE THEY GET TO THE WEB SITE, WHAT DO THEY HAVE TO DO?

>> WE' RE WORKING WITH AN ORGANIZATION CALLED THE FUTURE OF PRIVACY.

THEY' RE A WASHINGTON-BASED THINK TANK AND THEY HELPED US TO PUT THIS GROUP TOGETHER AND DEVELOP THE CODE AND THE CODE IS LIVE ON

THEIR SIDE.

NOW ALL OF THE COMPANIES THAT ARE PARTICIPATING ARE ALSO PUTTING THIS LIVE ON OUR SITES AS WELL.

AND THEN OF COURSE WITHIN THE OPT-OUT THERE'S GOING TO BE THE INFORMATION WHEN PEOPLE GO INTO THAT -- INTO THAT, IF THEY CHOOSE TO OPT OUT, THERE'S MUCH MORE INFORMATION, THERE'S A WHOLE FREQUENTLY ASKED QUESTIONS AREA THAT TALKED ABOUT THE CODE.

>> INSTRUCTING YOU ON HOW TO FIND YOUR MAC ADDRESS AND ENTER IT AND ALL OF THAT?

>> YES.

OK.

>> SETH, SO WE WANTED TO GO BACK TO THE POINTS THAT YOU HAD ACTUALLY MADE A LITTLE BIT EARLIER AND SOME OF THE CONCERNS THAT YOU HAD ABOUT PERSISTENT IDENTIFIERS AND HUE THEY'RE BEING BROADCAST FROM THE PHONES AND WHAT I'M WONDERING IS, YOU KNOW, GIVEN THE FACT THE MAC ADDRESS IS BEAK BROADCAST FROM THE PHONE AND THAT IS WHAT IS GOING ON, WHAT ARE YOUR THOUGHTS ON TRANSPARENCY AND CHOICES FOR CONSUMERS AROUND THAT AND WHY IT'S KNEADED AND WAYS TO DO THAT?

>> I MEAN, I THINK THAT THE PEOPLE WHO ARE MAKING THESE DEVICES, IN A SENSE, WILL, AS I SAID EARLIER, MORE TO BLAME FOR THE PROSPECT OF PEOPLE RANDOMLY KNOWING WHERE YOU ARE AT ANY GIVEN MOMENT AND SITUATION AND PLACE, I GUESS I WOULD LIKE TO SEE DEVICE MAKERS WARNING PEOPLE, YOU KNOW, WHEN YOU USE Wi Fi OR WHEN YOU HAVE Wi Fi ON, THE Wi Fi NETWORKS THAT YOU'RE ON OR NEAR CAN RECOGNIZE YOU.

I AGREE THERE'S A VERY CHALLENGING WAY ABOUT HOW TO CONVEY INFORMATION AND HOW TO GET PEOPLE TO PAY ATTENTION TO IT, WHO THEY'RE IN A STORE OR WHETHER THEY'RE OPENING THEIR CELL PHONE FOR THE FIRST TIME, AND I DON'T PRESUME TO KNOW THE BEST WAY TO GO ABOUT CONVEYING THAT BUT I WOULD LIKE TO SEE DEVICE MAKERS WARNING PEOPLE, PEOPLE WILL KNOW WHERE THIS DEVICE IS WHEN USED AS INTENDED, AND THESE ARE SOME OF THE PEOPLE THAT CAN KNOW THAT.

SO THAT'S SOMETHING THAT I WOULD LIKE TO SEE.

I CERTAINLY THINK THAT IF THERE'S A STORE SOMEWHERE THAT IS DOING THIS THAT PUTTING UP A SIGN AS WE HAVE JUSTEN BEEN TALKING ABOUT IS AN APPROPRIATE THINGS O DO IN THAT CONTEXT AND IT'S A SENSIBLE THING TO DO TO WARREN PEOPLE AND GIVE THEM AN OPT OUT.

I GUESS AS I SAID EARLIER, THINKING OF THE APP THAT ASHKAN FOUND THAT IS COLLECTING MAC ADDRESSES, I'M MUCH LESS CONCERNED ABOUT THE RELATIVELY RESPONSIBLE PEOPLE WHO ARE AFFIRMATIVELY INTERESTED IN WARNING PEOPLE AND GIVING THEM APPEAR OPT OUT AND GIVING PEOPLE MORE CONTROL, AND I'M MORE CONCERNED ABOUT THE NOTE THAT THERE'S SUCH A LOW PAIRIER ENTITY FOR LOCATION TRACKING. FOR THOSE OF YOU THAT WERE HERE IN TIME TO SEE THE DEMO EARLIER, THE DEEM OWE WAS DONE AN ON ORDINARY LAPTOP WITH VERY ORDINARY HARDWARE.

IT WASN'T DONE WITH SOME SUPER HIGH-TECH THING THAT IS ONLY AVAI LABLE FROM GOVERNMENT RESEARCH LABS OR SOMETHING.

IT'S AN ORDINARY LAPTOP.

AND IN FACT DR. SWEENEY WAS SAYING SHE WHO TO PROGRAM IT NOT TO TRACK EVERYBODY THAT WALKED BY AND THAT WAS AN ACTUAL EFFORT TO GO TO DO MAKE SURE THAT IT WOULDN'T TRACK ALL OF YOU AS YOU WALKED INTO THE BUILDING.

SO THE BARRIER TO ENTRY FOR DOING FAIRLY INVOLVED TRACKING IS RELATIVELILY AND THERE ARE A LOT OF DIFFERENT KINDS OF ENTITIES THAT COULD UNDER TAKE IT, NOT JUST SIGN ON TO THE CODE OR TRYING TO PUT UP SIGNS AND INFORM PEOPLE.

>> MAY I ADD TO WHAT SETH WAS SAYING HERE.

LOOK THIS IS RELATIVELY NEW TECHNOLOGY.

THERE ARE SOME ADVANTAGES TO THE RETAIL AND OTHERS TO OUR CUSTOMERS FROM ITS USE.

BUT IT'S NOT SO PERVASIVE THAT IT IS CRITICAL TO RETAILERS' OPERATIONS.

WE WOULD LIKE TO SEE IT GROW. WE'RE NOT INTERESTED IN SEEING TECHNOLOGY ARRESTED.

HOWEVER IF DEVICE MANUFACTURERS

WANTED TO PUT A KILL BUTTON ON CELL PHONES, THAT WOULD BE SOMETHING THAT YOU WOULDN'T FIND THE RETAIL INDUSTRY OBJECT WILL TO AS A GENERAL PROP SIGNIFICANCE.

>> I THINK THE MORE USEFUL THING WOULD BE A BUTTON THAT SAYS CHANGE MY MAC ADDRESS.

AND I THINK IT HAS SUBSTANTIAL PRIVACY BENEFITS AND I THINK IT HAS VERY FEW ADVERSE TECHNICAL CONSEQUENCES AND I THINK FOR THE STATISTIC DELL PURPOSES AT LEAST IN TERMS OF DWELL TIME, WAIT TIME, NOT NECESSARILY IN TERMS OF REPEAT VISITS, YOU WOULD STILL BE ABLE TO DO THAT.

SO CERTAINLY IF WE'RE THINKING ABILITY WHAT BUTTON WE WOULD LIKE TO HAVE, I WOULD LIKE TO SEE IT CHANGE MY MAC ADDRESS BUTTON.

NOW, IT DOES MEAN THAT YOU WOULDN'T GET THE REPEAT VISITS OR REPEAT VISITS DATA WOULD BE A LITTLE BIT LESS ACCURATE BUT FOR THE WAIT TIME AND DEVELOP TIME YOU COULD STILL GET THAT.

>> SETH I WANTED TO BRING UP THE POINT GOING BACK TO THE CVS APP. WITHIN AN APP, WHEN AN APP IS DOWNLOADED AND GOOGLE IS DOING THIS IN THE ANDROID, THE MAC ADDRESS IS WIPED OUT AND THERE'S NO MAC ADDRESS BROADCAST WHEN YOU'RE IN THE GOOGLE OR APPLE ECOSYSTEM, THE MAC ADDRESS IS NOT TRANSMITTED.

IT'S A SEVERE 0 AND ZERO REECE OF ZEROS.

APPLE AND GOOGLE APPLY AN UNIQUE IDENTIFIER TO THE POLITICS OR TO THE DEVICE.

BECAUSE JIM AND MY SELF AND OTHERS LIVE OUTSIDE OF THAT ECOSYSTEM AND SEE THE MACK ADDRESS WE COULD NOT EVEN THEN COMBINE, EVEN IF WE WANTED TO, WE COULD NOT COMBINE THE APPLICATION THAT SOMEONE HAS AND A MAC ADDRESS SO THE GENERIC MAC ADDRESS THAT WE'RE CAPTURING, THERE'S NO WAY TO COMBINE THOSE SO EVEN IF OUR STANDPOINT IT SEPARATES THE ABILITY TO COLLECT ANYTHING PERSONALLY IDENTIFIABLE OR ANYTHING ALONG THOSE LINES.

IT PUTS ANOTHER WEDGE IN THERE AS A PROTECTION AGAINST THAT AND AGAINST PROFILING AND SORT OF NEGATIVE CONNOTATIONS OF THOSE THINGS.

>> SO I THINK IT'S VERY IMPORTANT THAT MOBILE OPERATING DEVELOPERS SHOULD PREVENT IDENTIFYING MAC ADDRESS AND THERE IS A TREND IN THAT DIRECTION IN EVENT I THE OS VERSIONS.

>> I THINK THAT IS GREAT AND WELCOME.

A BIGGER PICTURE APPLICATION THAT WAS FOUND IS THAT THERE WERE APP DEVELOPERS THAT TRIED TO YOU THE THANK INFORMATION IF THEY HAD ACCESS TO IT AND IT SEEMS WHOEVER KREED THAT APP IS WILLING TO TRY TO USE OTHER MEANS TO CIRCUMVENT THAT PRIVACY MEASURE, AND MY PREDICTION IS THAT THERE ARE OTHER TECHNICAL MEANS THAT ARE AVAILABLE THAT WE CAN TALK ABOUT, I THINK IT SHOULD BE A SEPARATE CONVERSATION LATER.

I THINK THERE ARE OTHER TECHNICAL MEANS THAT'S WILL BE FOUND TO CIRCUMVENT THAT PRIVACY MEASURE AND DO THAT RECONNECTION OF MAC ADDRESS AND IDENTITY. SO IT'S NOT NECESSARILY THAT IT'S GOING TO BE THE PARTICULAR WAY THAT ASHKAN FOUND THAT THE CVS APP IS DOING IT, WHICH I AGREE OS DEVELOPERS ARE TRYING TO PLUG THAT HOLE BUT THERE IS THAT WILLINGNESS IN PARTS OF THE INDUSTRY TO MAKE THESE ASSOCIATIONS.

AND I THINK THAT WE'RE GOING TO SEE THAT IN THIS CONTEXT WHERE THERE'S A WILL, THERE'S A WAY.

>> ONE THING THAT I'M ALSO CONCERNED ABOUT IS THAT WE'RE OVER SIMPLIFYING THE PROBLEM. SO WHEN YOU TALK TO PEOPLE ABOUT AN ANYONE TEE THERE ARE TIMES WE WANT TO BE ANONYMOUS AND THERE ARE OTHER TIMES WE'RE OK WITH YOU KNOWING WHO WE ARE AND THERE ARE OTHER TIMES WE WANT YOU TO KNOW WHO WOULD ARE.

FOR EXAMPLE WHEN YOU'RE CHECK BEING OUT IN THE STORE AND DON'T WANT YOUR CREDIT CAR TAKEN DO YOU WANT TO BE PERSONALLY IDENTIFIED?

PEOPLE WANT YOU TO LOOK AT THEIR I. D.

THERE ARE TIMES WHEN WE DO WANT THAT TO BE IN PLACE AND THERE ARE OTHER TIMES THAT WANT TO BE ANONYMOUS SO I THINK THAT IT'S A DIFFICULT DESIGN PROBLEM AND WE HAVE TO TAKE A STEP BACK AND

LOOK AT WHAT DO CONSUMERS REALLY WANT AND CARE ABOUT AND NOT OVER SIMPLIFY THE SOLUTION AND NOT ASSUME THAT IS GOING TO HAPPEN OVERNIGHT.

ALL WORKING TOWARDS THAT POSITIVE OUTCOME, BUT WE HAVE TO FIRST UNDERSTAND WHAT PEOPLE CARE ABOUT.

>> I JUST WANTED TO FOLLOW UP ON A POINT THAT YOU MADE.

WHEN YOU'RE TALKING ABOUT THE ABILITY TO POSSIBLY RESET A MAC ADDRESS, YOU KNOW THAT ONE OF THE THINGS THAT MIGHT BE LOST WITH THE NEW VERSUS RETURNING VISITORS.

SO I WANTED TO HEAR PREVIOUSLY ABOUT IS, TO WHAT EXTENT DO YOU THINK THE PRIVACY CONCERNS DIFFER IF YOU'RE LOOKING JUST AT THE CURRENT LOCATION VERSUS THAT LOCATION OVER TIME WITH THE RETURNING VISITORS?

>> WELL I THINK LOCATION OVER TIME, YOU KNOW, ILANA EHUED TO THE AREA IT'S SOMETHING PEOPLE ARE ANXIOUS ISSUES ABOUT AND I THINK PEOPLE HAVE VERY IMPERFECT MEMORIES AND MACHINES HAVE PERFECT MEMORIES, AND PEOPLE OFTEN DON'T EVEN REMEMBER THE SENSITIVITY OR THE POTENTIAL SENSITIVITY IN THINGS THEY HAVE DONE IN THE MACS THEY HAVE BEEN AN AMAZING EXAMPLE THAT SOMEONE IN THE FIELD GAVE ME 5 FEW YEARS AGO IS THAT YOU CAN USE LOCATION TO DETERMINE IF PEOPLE ARE HAVING AN EXTRAMARITAL AFFAIR BECAUSE CERTAIN PEOPLE SPENT THE NIGHT IN THE SAME PLACE, YOU OBSERVE THEM IN THE PLACE IN THE AND EVENING OBSERVE THEM IN THE PLACE IN THE MORNING AND THAT SORT OF FALLS OUT OF LOCATION ACCIDENTLY.

OBVIOUSLY NO ONE HAS STARTED A COMPANY TO DETECT IF PEOPLE ARE HAVING EXTRAMARITAL AFFAIRS USING LEAKS DATA BUT PEOPLE'S SORT OF IMPERFECT MEMORIES MAKE THEM NOT EVEN SEE THE SENSITIVITY IN THE LOCATION TRAIL THAT THEY LEAVE BEHIND AND THE DATA TRAIL THAT THEY LEAVE BEHIND AND FOR THAT REASON BRUCE SNIDER COMPARED DATA TRAILS TO A KIND OF POLLUTION BECAUSE YOU CAN'T NECESSARILY SEE IT AND YOU'RE NOT HARMED BY THE IN THE SHORT-TERM.

SO I THINK THE -- THE INFERENCES

THAT CAN BE DRAWN FROM PEOPLE' S LOCATIONS ARE MUCH MORE EXTREME OVER THE LONG-TERM IN TERMS OF PEOPLE' S HABITS AND HABITUAL ACTIVITY AND SOMEONE GOES TO A PARTICULAR PLACE OF WORSHIP EVERY WEEK AND YOU CONCLUDE THAT THEY PROBABLY ARE A MEMBER THERE AND THEY PROBABLY ACTUALLY BELONG TO A PARTICULAR RELIGIOUS GROUP AS OPPOSED TO SOMEONE THAT WAS ONCE OBSERVED APPARENTLY AT THAT PLACE OF WORSHIP, WELL, MAYBE THEY WERE ATTENDING A MUSICAL CONCERT OR SOMETHING? SO ALL OF THESE THINGS, AS YOU GET THE OVERALL PICTURE OF SOMEONE' S LIFE, SOMEONE' S HABITS AND ASSOCIATIONS ARE MUCH MORE SIGNIFICANT OVER TIME AND I AGREE THERE' S NOT THAT MUCH SENSITIVITY IN THE MOMENTARY OBSERVATION OH, THIS PERSON WENT TO THIS STORE ON THIS ONE DAY. THAT' S NOT VERY SENSITIVE AT ALL.

BUT OH, THIS PERSON GOES TO THIS KIND OF PLACE.

OH, THIS PERSON KNOWS THIS PERSON BECAUSE THEY WERE SEEN TOGETHER, OH, THIS PERSON IS IN AN INTIMATE RELATION WITH THIS PERSON BECAUSE THEY WERE SEEN IN CERTAIN PLACES THAT' S MUCH MORE SENSITIVE AND INFORMATION THAT FALLS OUT OVER TIME.

>> GREAT U.

>> SETH, ALSO I WANTED TO FOLLOW UP ON THAT, THAT YOU' RE -- THE INFERENCE IS THAT IF YOU WERE TALKING AT OUR COMPANY WE WOULD HAVE TO HAVE OUR SENSORS INSTALLED AT ALL OF THE HOTELS, EVERY PLACE OF WORSHIP, LIKE WE WOULD HAVE TO HAVE -- WE WOULD BE EVERYWHERE, WHICH IT' S WONDERFUL TO HAVE THAT HAPPEN FROM A BUSINESS STANDPOINT BUT THE REALITY OF THAT HANG IS SORT OF -- YOU KNOW WE' RE REACHING A LITTLE BIT IN TERMS OF THE PLACE OF WORSHIP WOULD HAVE THEN HIRED U. S. TO INSTALL OUR SENSORS WITHIN THERE TO THEN OBSERVE THEIR VISITORS EVERY SUNDAY TO FIND OUT WHO IS COMING EVERY SUNDAY OR WHAT PERCENTAGE ARE COMING EVERY SUNDAY, 23 THEY WERE THEN TO SORT OF USE THAT, IT' S THEIR DATA TO USE. THEY WOULD YOU NOT USE THAT TO PROFILE THEIR OWN PEOPLE. SO IT' S JUST -- THIS IS WHERE

SOMETIMES IT -- WE CAN GET WHERE THERE'S SO MUCH DATA BEING COLLECTED AND THERE IS A LOT COLLECTED AND OBVIOUSLY THE PROTECTION OF THAT DATA IS PARAMOUNT, BUT THERE IS THINGS REQUIRED TO HAVE CONNECTIONS DRAWN AND ALMOST ALL CASES THINGS USED SELECTED AT ALL AND NEVER COULD BE.

>> I WOULD AGREE THAT THE CURRENT SCALE OF ANALYTICS IS NOT DENSE ENOUGH TO MAKE SOME OF THE MOST EXTREME PRIVACY INVASIVE INFERENCES BECAUSE YOU DON'T HAVE SENSORS IN A LOT OF THE PLACE THAT PEOPLE ARE MOST ANXIOUS ABOUT THAT PEOPLE HAVE BEEN ASK.

I GUESS IT'S A BIG PICTURE CERTAIN AND IT'S A LONG-TERM CONCERN ABOUT AS YOU GET MORE INFORMATION, SOME OF THOSE THINGS WILL SHOW UP IN THE SENSOR NETWORKS.

IN THE ONLINE WORLD THOSE ARE ALREADY SHOWING UP IN THE SENSE THAT WEB SITES ARE ABLE TO GET THAT FROM AN I.P. ADDRESS AND AS I WAS DISCUSSING WITH ASHKAN THERE ARE THOSE WHO ARE TRYING TO USE -- IF YOU LOOK AT THE BIG PICTURE OF THE INDUSTRY, I THINK THOSE CONCERNS CAN DEVELOP OVER TIME.

>> THANKS.

WE'LL REALLY HATE TO CUT OFF THE CONVERSATION BUT WE ARE BASICALLY OUT OF TIME.

WE WANT TO GIVE EVERYBODY JUST 15 SECONDS EACH TO KIND OF GIVE YOUR CLOSING THOUGHTS ON THIS SO WE CAN START AT THE END WITH GLENN?

>> I GET JUST TO REITERATE THAT WE AGREE AND SUPPORT 100 PERCENT THAT CONSUMER PRIVACY IS, AGAIN, PARAMOUNT TO EVERYTHING THAT SHAH BEING DONE.

I THINK THAT AS AN INDUSTRY, WE ACTUALLY STEPPED UP AND SAID WE UNDERSTAND THIS AND WE WANT TO DEVELOP A CODE OF CONDUCT THAT IS AT LEAST A STARTING POINT TO HELP BRIDGE SOME OF THE NEXT TIME FRAME.

MY ONLY CAUTION IS THE MARKET CONFUSION OVER WHAT IS WITHIN AN APP THAT SOMEBODY IS DOWNLOADING AND USING ON A DAILY BASIS THAT THEY WANT TO USE THAT IS NOT EVEN GIVING OUT A MAC ADDRESS VERSUS WHAT IS BEING OBSERVED AN

ON ONGOING BASIS TO HELP WITH CUSTOMERS EXPERIENCE AND COMPETE IN THAT ONLINE WORLD.

>> I THINK I WILL CONCLUDE AS I BEGAN BY SAYING THIS ULTIMATELY, AT LEAST IN THE RETAIL ENVIRONMENT IS GOING TO COME DOWN TO A MATTER OF TRUST. RATHER THAN TALKING ABOUT NOTICE FOR OBSERVATIONS, WE SHOULD BE TALKING ABOUT NOTICE FOR PARTICULAR RRI ZED USES. THAT MIGHT BE PROBLEMATIC. AND THAT, WHETHER A USE IS PROBLEMATIC WILL DEPEND ON THE RELATIONSHIP OF THE CUSTOMER WITH THE ENVIRONMENT THEY ARE IN.

IN A STORE ENVIRONMENT FOR THE REASONS THAT I SAID BEFORE, IT'S LIKELY THAT THE STORE IS GOING TO FIND -- TRY VERY HARD TO FIND THAT RIGHT BALANCE.

IN A MORE OPEN ENVIRONMENT, SAY, IN A MALL WHERE THE CUSTOMER DOESN'T HAVE A RELATIONSHIP OR PERHAPS AN AIRPORT THERE MAY BE A DIFFERENT PARADIGM THAT APPLIES BUT FOR OUR PERSPECTIVE TRUST IS THE KEY.

>> I WOULD LIKE TO REMIND EVERYONE THAT DR. SWEENEY SET UP THAT DEMONSTRATION ON AN ORDINARY LAPTOP AND HAD TO PROGRAM IT NOT TO COLLECT ALL OF YOUR MAC ADDRESSES.

IF SHE HAD NOT ACTIVELY PROGRAMMED IT THAT BAY THEN ALL OF YOUR DEVICES THAT HAVE Wi Fi ENABLED WOULD HAVE AN OBSERVATION IN THAT LAPTOP SAYING THAT YOU WERE HERE AT THIS TIME AND MAYBE IT'S NOT VERY SENSITIVE TO YOU THAT YOU WERE HERE WHAT THIS BORK SHOP AT THIS TIME BUT MAYBE THERE'S SOME RELATIONSHIP THAT YOU WOULDN'T LIKE SOMEONE TO OBSERVE YOU IN THAT WAY.

AND SO I THINK YOU KNOW THE STATISTICAL AND AGGREGATE APPLICATION OF ANALYTICS ARE NOT THE SCARIEST FROM A PIEV OBVIOUSLY THE PROFILING ANALYTICS THAT WE HAVEN'T SEEN DEPLOYED COMMERCIALY SO FAR TO DATE ARE DRAMATICALLY SCARIER BUT I THINK THAT THE BARRIERS TO ENTRY ARE EXTREMELY LOW AND I THINK TO THE EXTENT THAT PEOPLE WANT THEIR LOCATION TO BE USED TO PROVIDE SELVESSES TO THEM AND THEY WANT PEOPLE TO KNOW THEIR

LOCATION, IT'S TECHNICALLY EASY TO DO THAT IN A CONSENSUAL WAY BY HAVING PEOPLE INSTALL APPLICATIONS THAT SHARE THEIR LOCATION IN HAD A DEFINED WAY FOR A PARTICULAR PURPOSE AND WE ALREADY HAVE APPLICATIONS THAT DO THAT SO I THINK WE SHOULD BE LOOKING TO THAT AS THE MODEL FOR PRIVACY PROTECTION USE OF LOCATION AND LOOKING FOR TECHNICAL MEANS LIKE CHANGE MAC ADDRESSES THAT ACTUALLY DON'T REQUIRE PEOPLE TO HAVE THEIR DEVICES BE OBSERVABLE AND RECOGNIZABLE BY EVERYONE BE A LAPTOP.

>> I THINK IT'S EARLY IN A RAPIDLY EVOAFLING INDUSTRY FROM A TECHNOLOGY STANDPOINT AND IMPORTANT FOR US TO KEEP IN MIND WHAT IS THEORETICALLY POSSIBLE FROM WHAT IS PRACTICABLE AND ACTIONABLE AND MARKET DRIVEN IN TODAY'S WORLD, AND SO I DON'T DISPUTE SOME OF THE HYPOTHETICAL POSSIBILITIES DOWN THE ROAD, BUT YOU KNOW WE'RE IN THE BUSINESS OF HELPING REAL BRICK AND MORTAR RETAILERS COMPETE MORE EFFECTIVE WILL SERVE THEIR CUSTOMERS BETTER TODAY, AND THAT'S WHERE WE KEEP OUR FOCUS, AND ABSOLUTELY WE HAVE TO CONTINUE TO EVOLVE OUR TECHNOLOGY, EVOLVE OUR CONDUCT, BUT AT THE END OF THE DAY, I THINK MARKET FORCES PREVAIL.

BECAUSE THOSE RETAILERS OR OTHER BUSINESSES THAT VIOLATE THE TRUST OF THEIR CONSUMERS WILL BE PUNISHED BY THE MARKETPLACE MORE THAN ANYTHING ELSE AND SO I DON'T THINK THAT THE REALITY IS THAT SOME OF THE WORST CASE SCENARIOS WILL COME TO BE BECAUSE I DON'T THINK THE MARKET WILL ALLOW IT.

>> YEAH, I THINK -- I ALWAYS LOOK AT IT FROM THE CUSTOMER'S PERSPECTIVE, THE USER'S PERSPECTIVE.

THEY TRUST RETAILERS RIGHT NOW. AND THEN IF YOU LOOK AT IT FROM THE RETAILER'S PERSPECTIVE, ARE THEY GOING TO TRY TO COMPROMISE THAT TRUST?

WHY WOULD THEY WANT TO DO THAT? DO THEY WANT THEIR CUSTOMERS TO COME BACK?

SURE.

DO THEY WANT TO PROVIDE BETTER GOODS AND SERVICES FOR THEM?

YEAH.
EVERYONE IS TRYING TO HELP EACH OTHER IN THIS PARTICULAR ENVIRONMENT.
THAT DOESN'T MEAN THERE MAY NOT BE OTHER AREAS WHERE HARM CAN BE DONE BUT AT THE END OF THE DAY THE COLLECTION OF THE INFORMATION AND THE ALGORITHMS ARE THOSE BAD THINGS?
I DON'T THINK.
SO IT'S THE OUTCOME.
SO I THINK WE HAVE TO ALWAYS TRY TO UNDERSTAND WHAT DO CONSUMERS REALLY CARE ABOUT, PROVIDE THAT TRANSPARENCY SO THEY KNOW TO IT BENEFITS THEM OR NOT SO THEY COULD MAKE A CHOICE, AND REALIZE THAT WE'RE AT THE BEGINNING.
I THINK TO YOUR POINT THIS IS A HARD PROBLEM.
TRYING TO GET PEOPLE'S ATTENTION AND TRYING TO PROVIDE THAT IS NOT GOING TO HAPPEN OVERNIGHT.
WE'RE GOING TO DO IT BUT IT'S A PROCESS, A DESIGN PROCESS SO --
>> THANK YOU.
THANK YOU ALL VERY MUCH.
THANK YOU TO ALL OF OUR PANELISTS FOR JOINING US TODAY.
THIS HAS BEEN A GREAT DISCUSSION.
THANK YOU FOR PARTICIPATING AND THOSE WHO HAVE BEEN VIEWING VIA WEB SITE.
WE HOPE YOU ENJOYED THE DISCUSSION AND WE WOULD LIKE TO REMIND EVERYONE WE'RE ACCEPTING PUBLIC COMMENTS UNTIL MARCH 19.
YOU CAN FIND INSTRUCTIONS FOR SUBMISSION ON THIS WEBINAR.
AND OUR KEYOLOGIST WILL BE CONDUCT OTHER DEMONSTRATION AGAIN OUTSIDE OF THIS CONFERENCE CENTER SO IF YOU DIDN'T GET A CHANCE TO SAY IT ON THE WAY IN, YOU CAN SEE THAT NOW.
AND FINALLY WE WOULD LIKE TO REMIND YOU THIS IS A FIRST IN A SERIES OF THREE SPRING PRIVACY SERIES.
THE SECOND IS MARCH 19.
AND THE THIRD CONSUMER GENERATED CONTROLLED HEALTH DATA ON MAY 7.
THANK YOU ALL.
[APPLAUSE]