The Big Picture: Comprehensive Online Data Collection
Transcript
December 6, 2012
10:00 AM

Session 1

>> IF EVERYONE WOULD TAKE THEIR SEAT, WE'LL START IN JUST A MINUTE.
ALL RIGHT, GOOD MORNING, EVERYONE.
I THINK WE'LL GO AHEAD AND START.
IF YOU CAN TAKE YOUR SEAT, AND EVERYONE IN THE HALLWAY, COME ON IN.
... ALL RIGHT, I'M GOING TO GO AHEAD AND GET STARTED.
GOOD MORNING, EVERYONE.
I'M DAVID LINCOM, AN ATTORNEY HEE AT THE FTC'S DIVISION OF PRIVACY.
I WANT TO THANK EVERYONE FOR ATTENDING, HERE AND ON THE WEB CAST.
THIS IS "THE BIG PICTURE" OR WORKSHOP ON COMPREHENSIVE ONLINE DATA COLLECTION.
I'M VERY EXCITED.
I THINK WE HAVE A GREAT PANEL HERE AND EXCELLENT SPEAKERS.
WE'LL GET STARTED AS SOON AS WE CAN.
I WANT TO TAKE CARE OF A LITTLE HOUSEKEEPING BEFORE WE GET STARTED.
FIRST, THERE'S A SECURITY BLURB I NEED TO READ.
I'LL GO THROUGH THAT.
ANYONE WHO GOES OUTSIDE THE BUILDING TODAY, OUT THROUGH SECURITY, BEFORE YOU COME BACK IN, YOU'RE GOING TO HAVE TO GO THROUGH THE X-RAY AGAIN SO TAKE

THAT INTO ACCOUNT WITH TIMING AND EVERYTHING.
IN THE EVENT OF A FIRE OR EVACUATION OF THE BUILDING, LEAVE THE BUILDING IN AN ORDERLY FASHION.
AND THEN HEAD OUTSIDE THE BUILDING TO THE GEORGE WASHINGTON-- GEORGETOWN LAW CENTER ACROSS THE HALL.
WE WANT TO BE IN THE RIGHT FRONT SIDEWALK, AND LOOK FOR SOMEONE CHECKING IN ALL OF THE CONFERENCE CENTER FOLKS.
IF THE EVENT IN THE EVENT THAT IT'S SAFER TO REMAIN INSIDE, WE'LL TELL YOU WHERE TO GO INSIDE THE BUILDING.
IF YOU SPOT SUSPICIOUS ACTION, ALERT SECURITY.
THIS WEB CAST WILL BE RECORDED, AND BY PARTICIPATE INNING, YOU AGREE YOUR IMAGE AND ANYTHING YOU SAY OR SUBMIT MAY BE POSTED INDEFINITELY ON FTC.GOV, OR SOCIAL MEDIA SITES.
WE ARE GOING TO HAVE FIRST REMARKS FROM COMMISSIONER BRILL, AND THEN A PRESENTATION BY PROFESSOR DAN WALLACH, AND THEN WE WILL HAVE THREE PANELS.
THE FIRST PANEL WILL BE ABOUT KIND OF THE CURRENT LANDSCAPE OF ONLINE DATA COLLECTION, AND THE BENEFITS AND RISKS INVOLVED.
THEN WE WILL HAVE LUNCH.
AND THEN A SECOND PANEL ON CONSUMER CHOICE AND ATTITUDES TOWARDS COMPREHENSIVE ONLINE DATA COLLECTION.
AND THEN FINALLY, WE WILL HAVE A PANEL ON SORT OF NEXT STEPS, WHAT THE INDUSTRY, CONSUMER ADVOCATES, REGULATORS, POLICYMAKE KERS DO IN THE FUTURE TO PRESERVE THE BENEFITS OF DATA

COLLECTION WHILE MINIMIZING THE RISK TO CONSUMERS.
THROUGHOUT THE DAY, IF YOU HAVE ANY QUESTIONS FOR ANY OF THE PANELISTS, THERE ARE SEVERAL WAYS THAT YOU CAN SUBMIT THE QUESTIONS.
FOR THOSE OF YOU IN THE BUILDING, IN YOUR FOLDER, YOU SHOULD HAVE SOME QUESTION CARDS.
JUST WRITE YOUR QUESTION ON THERE, RAISE YOUR HAND, AND ONE OF OUR PARALEGALS WILL COME BY AND PICK IT UP AND GET IT UP TO THE PANELIST.
ONLINE THERE ARE ALSO SEVERAL WAYS YOU CAN SUBMIT QUESTIONS.
ON TWITTER WITH HASH TAG FTCPRIE.
OR SENDING AN E-MAIL TO DATACOLLECTION@FTC.GOV.
ALL OF THAT SHOULD BE ON THE WEB CAST PAGE.
ALL RIGHT, SO WITH THAT, LET'S BEGIN.
AND I WOULD LIKE TO IT IT.
>> WHITE OF THESE MICRITICS IS ON.
IT'S REALLY GREAT TO BE HERE AND SEE HOME FAMILIAR FACES.
I'VE MET WITH MANY OF YOU OVER MANY DIFFERENT ISSUES.
I'M WAVING TO PEOPLE IN THE AUDIENCE.
IT'S ALMOST LIKE OLD HOME WEEK HERE.
IT'S GREAT.
AND BEFORE WE'RE BEING WEBCAST TODAY I WANT TO SAY A SPECIAL GOOD MORNING AND WELCOME TO THOSE OF YOU WHO ARE PARTICIPATING HAVE A THE WEB.
SO I'M HERE TO KICK OFF THIS WORKSHOP, WHICH IS DESIGNED TO HELP US DIVE INTO ISSUES

SURROUNDING PRENESSIVE DATA COLLECTION.
BEFORE I DO, I HAVE TO SAY A COUPLE OF THANK YOUS.
FIRST OF ALL, I'VE GOT TO THANK THE FTC STAFF WHO HAVE PUT SO MUCH EFFORT INTO PULLING THIS TOGETHER.
THIS WORKSHOP WAS ORGANIZED BY THE AGENCY'S DIVISION OF PRIVACY AND IDENTITY PROTECTION.
, SPEARHEADED BY DAVID LINCOM, WHO WAS JUST SPEAKING, WHO HAS REALLY SPENT THE BETTER PART PAST TWO MONTHS SPARING NO DETAIL FOR TODAY.
SO THANK YOU TO DAVID AND THANK YOU TO DPIP FOR THE ORGANIZATION TODAY.
I ALSO HAVE TO-- WHERE IS IT MIKE ZAHNIS.
THERE HE IS.
I THINK WE ALL-- MAYBE YOU MORE THAN ME-- MIKE ZAHNIS, A SPECIAL THANK YOU WHO DID NOT PURCHASE MY $25 STARBUCKS DRINK THIS MORNING BUT HELPED ME NAVIGATE THE LINE SO I COULD BE HERE ON TIME.
SO THANK YOU, MIKE.
SO WHAT I'D LIKE TO DO THIS MORNING IS TALK A BIT ABOUT WHAT PROMPTED THE AGENCY TO HOLD THIS WORKSHOP, AND THEN MENTION SOME OF MY THOUGHTS ABOUT THIS ISSUE.
WHICH I'M HOPEFUL CAN BECOME PART OF THE DISCUSSION TODAY.
SO TWO YEARS AGO, IN DECEMBER OF 2010, THE COMMISSION ISSUEDLY AS MANY OF YOU KNOW, A PRELIMINARY REPORT PROPOSING A NEW PRIVACY FRAMEWORK FOR BUSINESS AND POLICYMAKERS.
OUR PROPOSED FRAMEWORK WAS DESIGNED TO BALANCE CONSUMERS'

NEEDS TO PROTECT THEIR PRIVACY
INTERESTS WITH INDUSTRY'S NEED
TO INNOVATE, WHICH IN PART
RELIES ON COLLECTION AND USE OF
CONSUMERS' INFORMATION.
NO OF NOW, WHEN WE PROPOSED
THIS NEW FRAMEWORK, WE DISCUSSED
THE CHALLENGES CONSUMERS FACE IN
UNDERSTANDING THE NATURE AND
EXTENT OF CURRENT COMMERCIAL
DATA PRACTICES AND IN EXERCISING
AVAILABLE CHOICES.
ONE OF THE DATA COLLECTION
PRACTICES WE DISCUSSED, AMONG
MANY OTHERS, WAS THE CAPABILITY
OF INTERNET SERVICE PROVIDERS TO
ENGAGE IN DEEP PACT INSPECTION.
TO DATE, DEEP PACT INSPECTION,
OR DPI, HAS USED FOR NETWORK
MANAGEMENT AND MALWEAR
PREVENTION.
BECAUSE IT D-PACT PREPARATION
COULD BE USED TO AMASS
INFORMATION ABOUT CONSUMERS'
EVERY MOVE ONLINE, WE REQUESTED
COMMENTS ON HOW TO APPROPRIATE
PROTECT CONSUMERS FROM THIS
POTENTIALLY INTRUSIVE
TECHNOLOGY.
IN PARTICULAR, WE POSEDDED THE
QUESTION OF WHETHER DEEP-PACT
INSPECTION WARRANTED HEIGHTENED
RESTRICTION OR ENHANCED
CONSENT.
THE AGENCY, NOT SURPRISINGLY,
RECEIVED A SIGNIFICANT AMOUNT OF
INPUT ON THIS ISSUE.
SOME CONSUMER GROUPS, THE CENTER
FOR DIGITAL DEMOCRACY AND U.S.
PERG, FOR INSTANCE, URGEDLY THE
COMMISSION TO OPPOSE ANY USE OF
DEEP-PACKET INSPECTION BY
NETWORK OPERATORES, OTHER THAN
NETWORK MANAGEMENT, FOR
INSTANCE.
THEIR VIEW IS THE PROFILING

CAPABILITY OF THIS TECHNOLOGY SEVERELY THREATENS CONSUMER PRIVACY.
THE CENTER FOR DEMOCRACY AND TECHNOLOGY SINGLED OUT DEEP-PACKET INSPECTION BECAUSE ISPs SERVE AS THE GATEWAY TO THE REST OF THE INTERNET AND THUS HAVE THE POTENTIAL TO CONDUCT PROFOUND AND COMPREHENSIVE SURVEILLANCE.
HOWEVER, CDT BELIEVED THAT ANY OTHER TECHNOLOGY THAT COULD ALSO CAPTURE A SIMILARLY COMPREHENSIVE PICTURE OF A CONSUMER'S ACTIVITIES SHOULD BE HELD TO THE SAME STANDARD.
SOME INDUSTRY COMMENTERS SAID DEEP-PACT INSPECTION IS NOT ONLY TECHNOLOGY THAT CAN TRACK NEARLY ALL OF USERS' ONLINE ACTIVITY.
FOR EXAMPLE, WE HEARD FROM VERIZON THAT COOKIE-BASED TECHNOLS COULD COLLECT THE SAME, IF NOT MORE INFORMATION THAN COULD BE CAPTURED THROUGH DEEP-PACKET INSPECTION.
THE INTERNET COMMERCE COALITION ARGUED THAT IF DEEP-PACKET INSPECTION TECHNOLOGY COLLECTS THE SAME INFORMATION AS A BEHAVIORAL ADVERTISING NETWORK, DEEP-PACKET INSPECTION SHOULD NOT WARRANT HEIGHTENED RESTRICTIONS.
AND THE NATIONAL CABLE AND TELECOMMUNICATIONS ASSOCIATION BELIEVED IT WOULD BE COMPETITIVELY UNFAIR TO HOLD DEEP-PACKET INSPECTION TO A HIGHER STANDARD.
INDEED, NUMEROUS TECHNOLOGIES CAN CAPTURE LARGE AMOUNTS OF INFORMATION ABOUT US ONLINE OR ON MOBILE DEVICES AS WE GO ABOUT OUR LIVES.

DEEP-PACKET INSPECTION, SOCIAL PLUG-INS, HTP KEEKES, WEB BEACONS, BROWSER CAPABILITIES, AND OPERATING SYSTEM TECHNOLOGIES ALL COLLECT INFORMATION ABOUT OUR MANY ONLINE AND MOBILE ACTIVITIES.
AFTER REVIEWING THE MANY COMMENT THAT WE RECEIVED ON THIS ISSUE, ONE THING BECAME CLEAR TO US-- WE NEED TO FIND OUT MORE ABOUT HOW TO DIFFERENTIATE THE DATA COLLECTION CAPABILITIES OF DIFFERENT TECHNOLOGIES.
OR WHETHER ANY DIFFERENTIZATION APPROPRIATE.
WHICH BRINGS US TO TODAY.
WE'RE HERE TO LEARN MORE.
WHEN THE COMMISSION ISSUED THE FINAL PRIVACY FRAMEWORK IN MARCH OF 2012, WE IDENTIFIED COMPREHENSIVE DATA COLLECTION AS ONE OF THE AREA'S THAT REQUIRED FURTHER STUDY.
WE COMMITTED TO HOLD A WORKSHOP BEFORE THE END OF THE YEAR, AND BY GOSH, I THINK WE HAVE MADE IT.
EXCUSE ME.
DURING TODAY'S WORKSHOP, THERE ARE SOME QUESTIONS THEY WILL BE THINKING ABOUT AS WE LISTEN TO THE PRESENTATIONS AND DISCUSSIONS.
PERHAPS YOU'LL FIND THESE QUESTIONS USEFUL AS WELL, SO I WILL OFFER THEM UP TO YOU AS FOOD FOR THOUGHT.
FIRST, WHEN WE ADDRESSED DATA COLLECTION AND USE PRACTICES THAT WARRANT CHOICE IN OUR PRIVACY REPORT, WE PUT FORTH THE FOLLOWING GUIDING PRINCIPLE-- CHOICE IS NOT REQUIRED FOR COLLECTION AND USE OF INFORMATION IT THAT IS

CONSISTENT WITH THE CONTEXT OF
THE TRANSACTION OR THE COMPANY'S
RELATIONSHIP WITH THE CONSUMER.
TODAY, AS WE CONSIDER THE
ENTITIES THAT ARE ENGAGING IN
COMPREHENSIVE DATA COLLECTION,
LET'S CONSIDER WHETHER THESE
NOTIONS OF THE CONTEXT OF THE
TRANSACTION AND THE RELATIONSHIP
WITH THE CONSUMER IF MIGHT SERVE
AS USEFUL FRAMES FOR THINKING
ABOUT DIFFERENT FORMS OF
COMPREHENSIVE TRACKING.
SECOND, LET'S CONSIDER THE
TRANSPARENCY OF DATA COLLECTION
AND USE PRACTICES BY ENTITIES
WITH WHOM THE CONSUMER HAS A
RELATIONSHIP BUT IN SOME CASES,
WITH WHOM CONSUMERS GENERALLY DO
NOT INTERFACE.
THESE ARE ENTITIES THAT RUN IN
THE BACKGROUND ON OUR ONLINE AND
IN OUR MOBILE LIVES.
WOULD EXTENSIVE DATA COLLECTION
AND USE BY SUCH ENTITIES BE
CONSISTENT WITH THE CONTEXT OF
THE TRANSACTION WITH THE
CONSUMER?
IT AND IF SO, UNDER WHAT
CIRCUMSTANCES?
SOME ARE ENTITIES THAT
HISTORICALLY HAVE NOT BEEN
COLLECTING INFORMATION ABOUT OUR
ACTIVITIES ONLINE, OTHER THAN
FOR NETWORK MANAGEMENT AND OTHER
SIMILAR PURPOSES.
IF THEY WERE TO START TO DO SO,
HOW SHOULD THEY COMMUNICATE THIS
CHANGE IN THEIR PRACTICES TO
CONSUMERS?
THIRD, WHAT SHOULD HAPPEN IN THE
EVENT CONSUMERS HAVE AN OF
INADEQUATE, COMPETITIVE
ALTERNATIVES TO CHOOSE WHETHER
TO USE THE SERVICES PROVIDED BY
THESE ENTITIES OR IN THE EVENT

THAT THEY ARE LOCKED IN TO THEIR CURRENT SERVICE IN SOME WAY.
FOURTH, LET'S THINK ABOUT WHETHER THE DIFFERENT TECHNOLS-- TECHNOLOGIES USED TO COLLECT INFORMATION ABOUT THE CONSUMER RESULT IN SUBSTANDPOINTATIVELY TRACKING.
WE'LL TALK TODAY ABOUT ISPs, OPERATING SYSTEMS, BROWSERS, AD NETWORKES, AS WELL AS SOME ADDITIONAL PLAYERS IN THE DATA COLLECTION ECHO SYSTEM.
DO THESE TECHNOLOGIES FALL ON A CONTINUUM IN TERMS OF THEIR CURRENT OR POTENTIAL DATA COLLECTION ACTIVITIES?
OR ARE THERE BRIGHT LINES THAT MIGHT SEPARATE SOME FROM OTHERS?
A COUPLE OF OTHER POINTS TO CONSIDER AS WE LAUNCH INTO THESE DISCUSSIONS.
WE KNOW THAT COMPREHENSIVE DATA COLLECTION ALLOWS FOR A GREATER PERSONALIZATION AND FOR OTHER BENEFITS FOR CONSUMERS.
WE'LL HEAR MORE ABOUT THESE IMPORTANT BENEFITS AS THE DAY GOES ON.
AND WE KNOW THERE ARE MANY CONTEXTS IN WHICH THIS GREATER PERSONALIZATION IS DESIRABLE.
BUT THERE MAY BE OTHER CONTEXTS IN WHICH IT DOES NOT LEAD TO DESIRABLE RESULTS.
IN AN INTERESTING ARTICLE THAT I'M SURE MANY OF YOU READ, WHICH APPEARED IN THIS PAST SUNDAY'S "NEW YORK TIMES" MAGAZINE SECTION, PROFESSOR JEFFREY ROSEN OF GEORGE WASHINGTON UNIVERSITY DESCRIBED TWO DISTINCT PROFILES THAT HE WAS ABLE TO CREATE FOR HIMSELF ONLINE-- DEMOCRATIC JEFF AND REPUBLICAN JEFF.

EACH OF THESE DISSENT PROFILES
EXPERIENCED THE ONLINE WORLD IN
A VERY DIFFERENT WAY.
ROSEN NOTED WITH COMPREHENSIVE
TRACKING THAT WILL SOON BE
UBIQUITOUS, MOVING FROM OFFLINE
TO ONLINE TO MOBILE TO DIGITAL
TV, WE WILL SOON SEE SUCH
GRANULAR PERSONALIZATION THAT
EACH INDIVIDUAL'S DIGITAL
EXPERIENCE MAY ESSENTIALLY
BECOME ONE THAT IS CREATED ONLY
FOR HIM OR FOR HER.
IS THIS A GOOD THING?
OR IS THIS A BAD THING?
IT ROSEN DOESN'T REALLY ANSWER
THAT QUESTION.
AND I SUSPECT THAT THERE ARE AS
MANY DIFFERENT ANSWERS TO THOSE
QUESTIONS AS THERE ARE PEOPLE IN
THIS ROOM TODAY.
MORE INTERESTING TO ME IS THE
QUESTION OF WHEN THIS WILL
BEGIN.
ROSEN DOES ANSWER THIS
QUESTION.
HE QUOTES THE FOUNDER OF ONE OF
THE LEADING DATA AGIGATORS AS
SAYING THAT THIS KIND OF
SEAMLESS, MULTIFACETED TRACKING
WILL BEGIN-- AND I QUOTE-- ONCE
WE FIGURE OUT THE PRIVACY
RULES.
MOVING TO A MORE FUNDAMENTAL AND
CONCRETE HARMS THAT FALL MORE
DIRECTLY IN THE FTC'S
WHEELHOUSE, MANY OF YOU HAVE
HEARD ME SPEAK BEFORE ABOUT MY
CONCERNS REGARDING UBIQUITOUS
DATA COLLECTION AND USE.
I'M CONCERNED THAT THE RICH
PROFILES BEING CREATED ABOUT
CONSUMERS CAN BE USED TO HARM
THEMSELVES AT WORK AND IN
FINANCIAL LIVES.
AND I'M EQUALLY CONCERNED THAT

CONSUMERS ARE UNAWARE OF THIS DATA COLLECTION AND USE ACTIVITY OR THE COMPANIES THAT ENGAGE IN IT, AND SO THEY HAVE VERY LITTLE OPPORTUNITY TO EXERCISE ANY CURRENT RIGHTS THAT THEY MAY HAVE TO OPT, OF OUT, FOR INSTANCE, OR ANY RIGHT THEY MAY HAVE TO ACCESS OR CORRECT INFORMATION ABOUT THEM.
PAUL OHM, A PROFESSOR OF THE UNIVERSITY OF COLORADO AT BOLDER-- WHO BY THE WAY WE ARE DELIGHTED IS
DOING A STINT HERE
AT THE FTC, AND WILL BE MODERATING ONE OF TODAY'S SESSIONS LATER ON-- HAS POINTED OW THE MASSIVE COMBINATION OF FACTS THAT COMPANIES CAN GATHER THROUGH COMPREHENSIVE TRACK CATEGORY LEAD TO WHAT HE CALLS DATABASES OF RUIN.
DATABASES THAT MAKE IT HARD TO CONCEAL ASPECTS ABOUT OURSELVES THAT WE WOULD RATHER NOT BE BROUGHT OUT INTO THE OPEN.
AND THAT CAN HARM US WITH RESPECT TO EMPLOYMENT, FINANCIAL OPPORTUNITIES, AND OUR REPUTATIONS.
SO THAT'S IT FOR MY FOOD FOR THOUGHT TO HELP US START OFF THE DAY.
SO LET'S BEGIN BECAUSE WE HAVE A REALLY GREAT PROGRAM AHEAD OF US.
FIRST UP, IS DAN WALLACH, ASSOCIATE PROFESSOR IN THE DEPARTMENT OF COMPUTER SCIENCE AT RICE UNIVERSITY IN HOUSTON, TEXAS.
PROFESSOR WALLACH WILL TALK ABOUT THE DIFFERENT TECHNOLOGIES THAT ARE CAPABLE OF COMPREHENSIVE TRACKING AND THE

TYPE OF INFORMATION EACH OF
THESE TECHNOLS IS CAPABLE OF
COLLECTING.
PROFESSOR WALLACH IS ALSO THE
ASSOCIATE DIRECTOR OF THE
NATIONAL SCIENCE FOUNDATION'S
CENTER FOR-- AND I HOPE I GET
THIS RIGHT-- CORRECT, USABLE,
RELIABLE, AUDITABLE, AND
TRANSPARENT ELECTIONS, MORE
COMMONLY KNOWN AS ACCURATE.
DID I GET THAT RIGHT?
I DON'T KNOW WHERE THE "A" COMES
FROM.
>> "A" CENTER.
>> AH, "A" CENTER FOR CORRECT.
THANK YOU.
HIS RESEARCH INVOLVES COMPUTER
SECURITY AND HAS TOUCHED ON
ISSUES INCLUDING WEB BROWSERS
AND SERVERS, FEAR-TO-PEER
SYSTEMS, SMARTPHONES AND VOTING
MACHINES.
SO I AM DELIGHTED TO TURN THIS
OVER TO PROFESSOR WALLACH AND
THANK YOU VERY MUCH.
\(APPLAUSE)
>> ALL RIGHT, THANK YOU VERY
MUCH FOR HAVING ME HERE.
LET'S SEE, FOR THOSE OF YOU WHO
ARE ON THE WEBCAST, YOU SHOULD
SWITCH TO MY SLIDES WHICH A"E A
PDF.
IT SHPPED CALLED PRIVACY
2012.PDF.
AS I'M TALKING, FOR THOSE OF YOU
WHO JUST HAVE THE VIDEO OF ME
AND DON'T HAVE ANY IDEA WHAT
SLIDE I'M ON I WILL HOPEFULLY
SAY JUST ENOUGH TO CLUE YOU IN
TO WHAT PAGE I MIGHT BE ON.
MEANWHILE, I'M GOING TO TRY TO
FIGURE OUT HOW TO MAKE THIS
THING FULL SCREEN.
VIEW... PAGE DISPLAY.
NO.

AH.
NO.
THERE.
JUST BECAUSE THEY GIVE YOU A
Ph.D. IN COMPUTER SCIENCE
DOESN'T MEAN YOU KNOW HOW TO
MAKE A COMPUTER WORK.
OKAY SO I'M GOING TO BE TALKING
TODAY ABOUT PRIVACY AND TRACKING
ON THE INTERNET.
THEY CHARGED ME WITH EXPLAINING
TO YOU HOW THESE DIFFERENT
TECHNOLOGIES WORK AND I'M GOING
TO TRY TO DO THAT IN A RELATIVE
POLICY-NEUTRAL WAY.
MY GOAL IS TO TELL YOU HOW
THINGS WORK, NOT WHETHER I THINK
THEY'RE GOOD OR BAD.
AND IN ORDER TO GIVE YOU A
WARM-UP, I'M GOING TO DRAW SOME
ANALOGIES FROM THE OFFLINE
WORLD, AND SINCE IT'S CHRISTMAS
SEASON, WE'RE GOING TO TALK
ABOUT SOME THINGS THAT WE'RE ALL
GETTING IN OUR MAIL THESE DAYS.
THESE ARE JUST A SELECTION OF
CATALOGS THAT ARRIVED IN A
SINGLE DAY IN OUR MAILBOX.
IF YOU LOOK ON THE BACK OF THESE
CATALOGES, YOU'LL SEE THERE ARE
ALL SORTS OF CENTERING DETAILS.
HERE'S A ZOOM-IN ON THE BACK OF
ONE OF THEM, AND YOU'LL SEE IT
HAS A CUSTOMER CODE, A MEDIA
CODE, AND A COUPON CODE.
ALL THESE NUMBERS THAT ARE
PRINTED THAT ARE PERSONALIZED TO
ME ON THIS CATALOG.
OF COURSE, THESE NUMBERS, IF I
BUY SOMETHING FROM THIS CATALOG
AND THEY ASK ME FOR THAT NUMBER,
THEN THEY CAN CONNECT ME TO THAT
PARTICULAR MAILING.
THEY CAN FIGURE OUT WHETHER I
GOT THE MAILING, WHETHER I
LOOKED AT IT.

SO I'M GOING TO CALL THIS A
FIRST-PARTY IDENTIFIER.
AND THIS IS A DIRECT
RELATIONSHIP BETWEEN MYSELF AND
A VENDOR.
SO THERE ARE LOTS OF DIFFERENT
IDENTIFIERS THAT ARE USED IN OUR
DAILY LIVES TO CONNECT US TO THE
COMPANY'S WITH WHEN WHICHWE DO
BUSINESS-- YOUR SUPERMARKET
REWARDS CARD.
WHEN YOU SCAN THAT CARD, THEY
KNOW IT'S YOU, AND THEY-- AND IN
RETURN FOR GIVING UP A LITTLE
BIT OF YOUR PRIVACY, YOU GET A
LITTLE BIT OF A SAVING ON
PRODUCTS YOU BUY AT THE
SUPERMARKET.
LIKEWISE, IF YOU HAVE YOUR
MACY'S CREDIT CARD, THEN
NECESSARILY MACY'S KNOWS WHAT
YOU DO WITH IT.
GIFT CARDS ARE SIMILAR.
IF YOU LOOK ON MANY OF YOUR
RERNTHZ WHEN YOU BUY YOUR COFFEE
AT STARBUCKS IN THE MORNING OR
SOMETHING, YOU'LL OFTEN SEE A
NUMBER, A LONG NUMBER.
THAT NUMBER SUNIQUE TO YOU, AND
THAT IDENTIFIES A TRANSACTION
BETWEEN YOU AND THE VEND SO IF
YOU GO TO RETURN IT LATER THEY
CAN FIND IT IN THEIR DATABASE,
KEEP TRACK OF THEIR INVENTORY,
ET CETERA.
NOW, I SAY CREDIT CARD NUMBERS
AS WELL, BUT I PUT AN ASTERISK.
THIS ISN'T REALLY A NUMBER
BETWEEN YOU AND A VENDER.
THERE'S SOME OTHER COMPANY--
YOUR BANK-- THAT'S IN CHARGE OF
THIS NUMBER BUT NORTHEASTERN
UNIVERSITY MANY COMPANIES WILL
USE YOUR CREDIT NUMBERS TO TRACK
AND YOU THEY'LL REMEMBER WHAT
YOU'VE BOUGHT OVER TIME CAN WITH

THAT CREDIT CARD NUMBER.
OF COURSE, THE TRICK IS ALL THESE NUMBERS MAP TO YOU AN ENTRY IN A DATABASE SOMEWHERE THAT CAN TRACK YOUR PURCHASING HISTORY, AND THEN THEY CAN TURN AROUND AND TARGET WITH YOU COUPONS OR ADVERTISING OR WHAT HAVE YOU.
IT'S IMPORTANT TO POINT OUT WITH ANOTHER AGGREGATION, THEY CAN MAKE SOME VERY POWERFUL INFERENCES.
THERE WAS AN ARTICLE EARLIER THIS EUROPE IN THE "NEW YORK TIMES" THAT EXPLAINED HOW TARGET, A LARGE, YOU KNOW, DEPARTMENT STORE, TARGET WAS ABLE TO INFER PREGNANCY BASED ON CERTAIN PURCHASES THAT PEOPLE TEND TO MAKE WHEN THEY GET PREGNANT.
AND THE ARTICLE GOES INTO NICE DETAIL ABOUT HOW SOME FATHER GOT VERY ANGRY THAT HIS DAUGHTER WAS BEING ADVERTISE TO.
AND HE THOUGHT SHE'S NOT PREGNANT AND IN FACT SHE HADN'T TOLD HIM YET.
THE ABILITY TO MAKE THESE KINDS OF INFERENCES -- I THINK THE LESSON TARGET FROM THIS WAS DON'T BE CREEPY.
BUT PERHAPS THE LESSON-- WE CAN TALK ABOUT WHETHER THAT'S NECESSARY OR SUFFICIENT LATER.
SO HERE'S ANOTHER AD I GOT IN THE MAIL AND IF WE LOOK AT THIS AND ZOOM IN WE WILL SEE THIS PARTICULAR BED, BATH, AND BEYOND COUPON HAS A REALLY LONG NUMBER ON A BARCODE.
THIS IS A UNIQUE NUMBER.
THAT MEANS EVERY BED, BATH, AND BEYOND SHIPS OUT HAS A NUMBER THAT UNIQUELY IDENTIFIES ME.

IF I USE THIS COUPON, THEY KNOW
IT'S ME.
EVEN IF I PAY CASH, HERE IT'S MY
WIFE'S NAME, BUT THEY'LL KNOW
THIS SPECIFIC COUPON GOT USE
BIDE THIS PARTICULAR PERSON.
SO IN RETURN FOR A $10 SAVINGS
OR SOMETHING, YOU'RE GIVING UP A
LITTLE BIT OF PRIVACY AND
HELPING THEM PROFILE YOU.
I'M IN THE MIDDLE OF REFINANCING
MY MORTGAGE RIGHT NOW-- LOW
INTEREST RATES, GOTTA LOVE IT.
AND I GOT THIS YEARS LETTER IN
THE MAIL, AND IT SAYS, "YOU'VE
RECEIVED THIS LETTER AS A RESULT
OF OUR RELATIONSHIP WITH THE
NATIONAL CREDIT BUREAUS.
WE WERE NOTIFIED OF YOUR RECENT
MORTGAGE INQUIRY."
AND LATER ON IT OFFERS ME THE
CHANCE TO OPT OUT PIE WRITING TO
EXPEERION.
WE'RE GOING TO CALL THIS A
THIRD-PARTY RELATIONSHIP.
I WENT TO MY BANK, JPMORGAN
CHASE, AND THEY DID A CREDIT
CHECK ON ME WITH EXPEERION.
EXPEERION SOLD THAT FOCUS OF
INFORMATION TO A COMPANY I HAD
NEVER HEARD OF AND SUPPORT ME AN
OFFER "WE'D LIKE TO HELP YOU
REFINANCE, TOO."
NOW THAT I'VE TALKED ABOUT
FIRST-PARTY VERSUS THIRD-PARTY
RELATIONSHIPS -- HERE THEY
LEARNED SOMETHING ABOUT ME, AND
I NEVER HEARD OF THEM BEFORE,
BUTS IN THE THEY LEARNED
SOMETHING ABOUT ME AND THEY WERE
ABLE TO ADVERTISE TO ME, LET'S
TALK ABOUT HOW FIRST-PARTY AND
THIRD-PARTY RELATIONSHIPS WORK
ONLINE.
SO FIRST LET'S TALK ABOUT
FIRST-PARTY ADVERTISEMENTS ON

THE WEB.
RIGHT.
SO THIS IS A SCREENSHOT OF THE "NEW YORK TIMES" BANNER FROM A COUPLE DAYS AGO.
AND YOU'LL SEE THERE'S AN ADVERTISEMENT FOR MARC JACOBS.
I HAVE NO IDEA WHO MARC JACOBS IS.
I THINK THEY SELL SOMETHING.
I PUT UP SOME OF THE HTML CODE FROM THE "NEW YORK TIMES" WEB SITE THAT DISPLAYS ADVERTISEMENT, AND I'VE USED HIGHLIGHTING-- SOME COLOR AND UNDERLINING TO POINT TO SOME OF THE INTERESTING PARTS HERE.
THE BLOCK OF STUFF ON TOP SAYS, "WHEN YOU CLICK ON THIS LINK YOU'RE GOING TO VISIT THE "NEW YORK TIMES" AGAIN, JUDGE THEN THE "NEW YORK TIMES" WILL DO SOMETHING FOR FOR MARC JACOBS.
THE BOTTOM PART SAYS, "PLEASE DISPLAY THIS IMAGE SERVED UP BY A "NEW YORK TIMES" SERVER."
I WANT TO WALK YOU THROUGH WHAT HAPPENS AND A USERS CLICKS ON THIS LINK.
THE USER' BROWSER WILL GO BACK TO THE "NEW YORK TIMES" SERVER AND WILL REQUEST A FILE OF THIS LINK WAY BUNCH OF OTHER INFORMATION THAT WAS ON THE PREVIOUS SLIDE.
THEN THE "NEW YORK TIMES" SENDS BACK A MESSAGE THAT'S AN HTPP3-302.
THAT'S A REDIRECT.
THAT'S A WAY OF SAYING, "HEY, BROWSER, THIS PAGE HAS MOVED SOMEWHERE ELSE.
PLEASE GO THERE."
AND THEN THE BROWSER SAYS, "RIGHT, OKAY, OFF TO MARCJACOBS.COM."

AND YOU'LL SEE NOW THE USER ENDS UP AT THIS MARCJACOBS WEB SITE WHERE YOU'VE GONE.
AND YOU MIGHT MARKETPLACE THE REQUEST TO MARC JACOBS HAS A QUESTION MARK, UTN UNDERSCORE OF SCORE SOURCE EQUALS NYT.
MARC JACOBS IS TOLD YOU ARE VISITING THEM FROM THE "NEW YORK TIMES."
THERE IS A BILLING RELATIONSHIP.
MARC JACOBS PAID THE "NEW YORK TIMES" FOR THIS AND THIS LETS THEM COUNT HOW MANY CLICKS CAME THROUGH.
SO TARGETED ADVERTISING, THERE'S A LOT OF DIFFERENT WAYS THAT THERE ARE FIRST-PARTY RELATIONSHIP WHERE'S VENDORS WHO KNOW THINGS ABOUT YOU WILL CUSTOMIZE ADS TO YOU.
WANT SIMPLEST EXAMPLE IS A SEARCH ENGINE LIKE GOOGLE.
SO HERE I'VE TYPED THE NAME OF A CAMERA THAT I MIGHT BUY WITH--
BECAUSE YOU KNOW MY CAMERA FROM LAST YEAR IS CLEARLY INSUFFICIENT.
I NEED TO HAVE THE LATEST AND GREATEST.
SO IF I TYPE NIKON D800, THE ADS FROM GOOGLE, THE FIRST TWO LINKS AT THE TOP OF THE PAGE ARE FROM COMPANIES WHO ARE ASSUMING IF I'M SEARCHING FOR A NIKON D800, I MUST WANT TO BUY ONE AND HERE IS SOMEONE OFFERING IT FOR THE LOW, LOATHE PRICE OF DEPUTY TWOF,679.
YAY.
IN THIS CASE, WHAT DOES GOOGLE KNOW ABOUT ME?
THEY KNOW I SEARCHED FOR IT AND MAYBE I WANT TO BUY IT AND THAT'S A GAMBLE THE COMPANIES

ARE WILLING TO TAKE.
THEY PAY GOOGLE AND PUT THIS IN FRONT OF ME.
DEPENDING ON THE RELATIONSHIP, THEY MIGHT PAY PER VIEW OR PAY PER CLICK.
IT THERE IS ANOTHER KIND OF USER PROFILING THIS IS WHEN I LOG INTO AMAZON AND SCROLL DOWN TO THE BOTTOM OF MY AMAZON PAGE AND YOU'LL SEE AMAZON IS MAKING RECOMMENDATIONS FOR THINGS I MIGHT WANT TO BUY.
I RECENTLY PURCHASED A KINDLE FOR MY AD SO THEY'RE OFFERING ME A TWO-YEAR WARRANTY AND POWER ADAPTER.
YAY!
LIKEWISE, I'VE BEEN BUYING COCKTAIL-MAKING SUPPLIES, OF AND THEY'RE SAYING BOY, MAYBE YOU'D LIKE TO HAVE A NICE MEASURING CUP OR PERHAPS THIS WONDERFUL TRAINER SO THAT WAY YOU DON'T GET ICE IN YOUR COCKTAIL.
IN THE MIDDLE, SINCE I'VE USED AMAZON'S APP STORE FOR MY ANDROID PHONE, THEY'RE OFFERING TO SELL ME AN APP, TOO.
WHAT'S GOING ON HERE?
I BUY A LOT OF STUFF FROM AMAZON
INGE MANY PEOPLE IN THIS ROOM ALSO BUY A LOT OF STUFF FROM
AMIS STRONG OVON?
YEAH, HEADS NODDING.
NO AMAZON CUSTOMERS HERE?
NOW THEIR HEADS ARE NODDING.
THEY'RE TRYING TO DO THE ONLINE EQUIVALENT OF IMPULSE BUYS.
GIVEN WHAT WE ABOUT YOU, YOU MIGHT WANT TO BUY THIS.
I'M SURE MANY PEOPLE IN THIS ROOM MAY OR MAY NOT BE LOOKING TO PURCHASE THE ACCESSORIES I AM.
SO WHERE DO VENDORS GET

INFORMATION ABOUT THE USER?
SO ON THE RIGHT SIDE OF THIS
SLIDE IS A SET OF ADVERTISEMENTS
THAT FACEBOOK GENERATES FOR ME.
I USE FACEBOOK.
THAT'S HOW-- THAT'S HOW MY
FAMILY SEES PICTURES OF MY
DAUGHTER.
IT'S HOW I GET TO ARGUE WITH
FRIENDS ABOUT TV SHOWS THAT
HAVEN'T BEEN ON THE AIR FOR TWO
DECADES -- YOU NAME IT.
FACEBOOK
LEARNS A LOT ABOUT ME IN ORDER
TO GENERATE THESE SURPRISINGLY
POORLY TARGETED ADVERTISEMENTS.
\(LAUGHTER)
SO FACEBOOK KNOWS WHO I AM.
THEY KNOW MY EDUCATION BECAUSE I
PUT IN MY COLLEGE.
THEY KNOW WHO I'M MARRIED TO,
BECAUSE I SAY THAT I'M MARRIED
TO HER ON MY FACEBOOK PAGE.
THEY KNOW WHAT I POST.
THANE WHAT I LIKE.
BECAUSE I SAY, "I LIKE LYLE
LOVETT," A FAVORITE MUSICIAN OF
MINE.
SO THEY CAN FIGURE OUT, BOY, IF
HE LIKES LYLE LOVETT MAYBE HE
LIKES..."
THEY CAN MAKE ALL SORTS OF
INFERENCES, WHICH THEY
SURPRISINGLY DON'T.
\(LAUGHTER)
LIKEWISE THEY CAN MEASURE A LOT
OF THINGS ABOUT ME, NOT FACEBOOK
BUT AMAZON MEASURES WHAT I BUY.
THEY MIGHT BE ABLE TO VISIT WEB
S THAT I VISIT.
WE'LL GET TO THAT IN A MINUTE.
THEY CAN TAKE MY IP ADDRESS AND
LEARN WHERE I AM, WHICH IS
TYPICALLY ACCURATE TO THE CITY
YOU'RE IN IF NOT BETTER.
ALTHOUGH IT'S SOMETIMES COMIC.

I WAS IN GERMANY FOR A
CONFERENCE AND FACEBOOK WAS
SUDDENLY ADVERTISING TO ME IN
GERALD AN.
AGAIN, NOT VERY WELL TARGETED
SINCE I'VE NEVER ONCE WRITTEN A
FACEBOOK POST IN GERMAN.
I MIGHT NOT UNDERSTAND GERMAN.
BUT ANYWAY, FACEBOOK CAN-- IN
ADDITION TO THINGS THEY TELL
THEM DIRECTLY, THEY CAN INFER
THINGS.
THEY CAN INFER THINGS BASE POD
MY FRIENDS.
IF MY COMPREHEND LIKE X, I MIGHT
LIKE X.
OR MY NEIGHBORS, ET CETERA.
SO THAT WAS ALL FIRST-PARTY
INFORMATION.
WHAT ABOUT THIRD PARTY?
WHAT ABOUT PARTIES WHO ARE--
THERE'S ME, THERE'S THE COMPANY
I'M DEALING WITH, THEN THERE'S
EVERYBODY ELSE.
WHAT CAN EVERYBODY ELSE LEARN IN
THIS GAME?
SO LET'S SAY I'M CAR SHOPPING SO
I VISIT AUTOBLOG.COM, A POPULAR
CAR BLOG, AND YOU SEE UP AT THE
TOP THERE'S AN ADVERTISEMENT FOR
THE ALL-NEW NISSAN ALTIMA.
OKAY.
SO I PUT UP THE HTML CODE FROM
THE AUTO BLOG WEB SITE, AND
AGAIN YOU'LL SEE THERE ARE TWO
MAIN PIECES.
THE BRACKET A.
THAT SAYS WHAT HAPPENS WHEN YOU
CLICK ON THE LINK, AND YOU'LL
SEE THAT IT MENTIONS THREE
DIFFERENT THINGS-- DOUBLE
CLICK.NET, AT WALLA.COM, AND
CHINE OF FINALLY
CHOOSENISSAN.COM.
WE'LL GET INTO THOUGH THESE
COMPANIES ARE IN JUST A SECOND.

AND LIKEWISE THE IMAGE ARE
SERVED UP BY 2 NDM.NET.
THAT IS RELATED TO DOUBLE CLICK
ANDAT WALLA IS RELATED TO
AMERICAN ONLINE WHO OWNS AUTO
BLOG.
THIS IS A LITTLE MORE
COMPLICATED THAN THE "NEW YORK
TIMES" EXAMPLE.
FIRST, THE BROWSER WILL GO TO
DOUBLECLICK.NET, WITH THAT WHOLE
BIG LONG STRING SAYING PLEASE
GET THIS IMAGE-- PLEASE,
BROWSERRER, GO VISIT THIS NEXT
PAGE.
DOUBLE CLICK, SENDS BACK A
REDIRECT AND SAYS PLEASE GO TO
ATWALLA.COM, SO THEY'RE BOUNCING
YOU BACK TO A DIFFERENT URL, BUT
IT'S STILL PART OF THE AMERICA
ONLINE FAMILY.
AND SO ATWALLA GETS TO KNOW THAT
YOU CLICKED ON THE LINK.
AND FINALLY, THEY REDIRECT YOU
AGAIN TO CHOOSENISSAN.COM.
ALL OF THIS HAPPENS IT'S USER
JUST CLICKS ON A LINK, AND ALL
OF THESE TRANSACTIONS HAPPEN
WITHOUT THE USER KNOWING,
REALLY.
FINALLY YOU END UP AT CHOOSE
NISSAN.
ALL OF THIS HAPPENS JUST BECAUSE
YOU CLICK ON ONE LINK.
THIS IS REASONABLY COMMON IN THE
ONLINE ADVERTISING WORLD.
SO WHAT'S GOING ON HERE?
WHY ALL THESE BOUNCES?
THIS IS ALL ABOUT MEASUREMENT.
DOUBLE CLICK GETS TO MEASURE
THAT YOU CLICKED.
AND ATWALLA GETS TO MEASURE THAT
YOU CLICKED.
AND ALL OF THAT MEASUREMENT IN
TURN AFFECTS HOW THE MONEY MOVES
FOR PEOPLE PAYING FOR YOU

CLICKING ON THAT AD.
SO LET'S TALK A LITTLE BIT MORE ABOUT HOW SOME OF THIS TRACKING WORKS, AND ALSO I'M GOING TO TALK A LITTLE MORE ABOUT GEOLOCATION AS WELL, AND THE MOBILE CASE IN PARTICULAR.
SO LET'S GO BACK TO THIS PAPER EXAMPLE.
HERE'S THAT SAME ADVERTISEMENT FROM BED, BATH, AND BEYOND.
AND LET'S SCROLL DOWN TO THE BOTTOM OF THE AD, AND YOU SEE THERE'S THIS YONIS ICE CREAM TREAT MAKER.
OH, BOY.
AND THERE'S A TWO-DIMENSIONAL BAR CODE SOMETIMES CALLED A QR CODE.
WHAT HAPPENS IF YOU SCAN THAT QR CODE?
I'M GOING TO USE THIS AS AN EXAMPLE TO EXPLAIN HOW COOKIES WORK BUT JUST FOR FUN, WE'RE GOING TO USE THIS AS OUR EXAMPLE.
SO IF YOU DECODE THAT QR CODE WITH YOUR PHONE WHAT, IT GIVES YOU IS A URL.
AND THE URL IN THIS CASE IS BTQ.CO, A COMPANY CALLEDUB" CURIOUS."
AT LEAST THAT'S HOW I ASSUME THEY PRONOUNCE THEIR NAME.
AND BE CURIOUS IS SOMEBODY THAT BED, BATH, AND BEYOND APPARENTLY HIRED TO PRODUCE THIS LITTLE QR CODE.
SO WHAT HAPPENS WHEN YOU GO TO THAT LINK?
THIS IS THE FULL RESPONSE THAT YOU GET FROM THE BE CURIOUS SERVER TO YOUR BROWSER.
I'M GOING TO BREAK THIS DOWN INTO PIECES SO THAT WAY WE CAN UNDERSTAND EVERYTHING THAT'S

GOING ON HERE.
THERE ARE TWO BROAD SECTIONS OF ANY WEB RESPONSE.
THERE'S A SET OF HTTP HEADERS, AND THEN THERE'S A BODY WITH HTML AND JAVA SCRIPT AND ALL THAT.
IN THE HEADER, THIS IS WHERE COOKIES HAPPEN.
LOTS OF OTHER THINGS HAPPEN, TOO.
BUT THE THING THAT WE'RE INTERESTED IN ARE THE COOKIES.
AND THEN IN THE BODY, THE JAVA SCRIPT CAN ALSO DO SOME TRACKING BEHAVIOR AS WELL.
SO FIRST LET'S TALK ABOUT THE COOKIES.
IN THIS CASE FROM-- SO WHAT IS A COOKIE?
A COOKIE IS JUST A STRING OF LETTERS, OR DINGS STORED AS A SET OF KEY VALUE PAIRS IN YOUR BROWSER.
SO A WEB SITE CAN SET A COOKIE, AND THEN WHEN YOU VISIT THAT WEB SITE AGAIN, IT WILL SEND THE KEEK BACK TO THEM.
VERY SIMPLE.
SO HERE'S THE PARTICULAR COOKIE THAT BE CURIOUS SETS IN MY BROWSER, AND SO I DON'T KNOW WHAT UNBQ STANDS FOR, BUT IT LOOKS LIKE AN IDENTIFIER THAT'S UNIQUE TO ME.
AND NOTICE THE EXPIRATION DATE.
THIS COOKIE WILL LIVE IN MY BROWSER FOR 10 YEARS.
THEN IT WILL GO AWAY.
SO ANY TIME IN THE NEXT 10 YEARS IF I SCAN ANOTHER BE CURIOUS QR CODE, THEN IT WILL-- THEY'LL KNOW THAT IT WAS ME.
OR THEY'LL KNOW THAT IT WAS THE SAME PERSON WHO CLICKED ON THE LAST ONE.

THEY DON'T HAVE THE WORDS "DAN WALLACH" NOT NECESSARILY.
BUT THEY DEFINITELY KNOW THAT THIS IS THE SAME BROWSER THAT WE SAW LAST TIME.
THEY ALSO HAVE SOME JAVA SCRIPT CODE THAT CAN DO IT-- JAVA SCRIPT IS A GENERAL PURPOSE COMPUTER PROGRAMMING LANGUAGE THAT YOUR BROWSER RUNS.
AND THEY HAVE-- SO THEIR JAVA SCRIPT EXECUTES THIS FUNCTION THAT THEY WROTE, TRACKING, AND THEN IT HAS THIS LONG STRING WHICH IS PROBABLY ANOTHER UNIQUE IDENTIFIER, UNIQUE TO ME, AND I IMAGINE IF I IT VISITED THEM LATER, I'D GET THE SAME STRING AGAIN.
LET'S LOOK AT THE CODE FOR THIS TRACKING FUNCTION.
AND SO, I'M NOT EXPECTING YOU ALL TO BE ABLE TO READ JAVA SCRIPT, BUT I WOULD ENCOURAGE YOU TO HAVE A LOOK AT THE LEFT COLUMN OF NAMES THAT YOU SEE HERE.
WHAT THEY'RE DOING IS THEY'RE ASKING MY BROWSER-- SINCE QR CODES ARE THINGS PEOPLE TYPICALLY SCAN WITH THEIR FOAMS, YOUR PHONE GENERALLY KNOW WHERE'S IT IS.
THE PHONE CAN MEASURE ITS LOCATION WITH GPS.
IT CAN MEASURE ITS LOCATIONS BY LOOKING AT THE BASE STATIONS, WHICH IS LESS ACCURATE BUT MORE AVAILABLE.
OR IT CAN JUST IT IT GOOGLE AND DO TRICKS BY LOOKING AT THE NEARBY WIFI AXIS POINTS.
THERE ARE SEVERAL DIFFERENT WAYS YOUR PHONE CAN FIGURE OUT WHERE IT IS WITH DIFFERENT DEGREES OF PRECISION.

WELL, THIS COMPANY BE CURIOUS IS ASKING FOR EVERYTHING THEY CAN GET-- POSTAL CODE, COUNTRY CODE, REGION, COUNTY, CITY, STREET, STREET NUMBER, LATITUDE, LONGITUDE, ALTITUDE, HEADING AND SPEED.
IF IT'S THERE, THEY'RE TRYING TO GET IT.
THEY WANT IT ALL.
AND WHAT DO THEY DO?
THEY SEND IT BACK.
SO IT GETS NORED A DATABASE SOMEWHERE.
SO NOW AS IT TURNS OUT, YOUR PHONE WILL POP UP A LITTLE MESSAGE THAT SAYS, "DO YOU WISH TO GIVE THIS INFORMATION, YES OR NO?"
TO WHICH I TYPICALLY CLICK "NO."
BUT SOME USERS WILL CLICK YES.
AND THEN THEY WILL DIVULGE ALL THIS INFORMATION.
IF THEY CLICK "NO," THEN IT ALL JUST COMES UP EMPTY.
SO WHY IS BE CURIOUS-- AND FOR THAT MATTER, WHY IS EVERY COMPANY DOING THIS?
I HAVE COPIED THIS FROM BE CURIOUS' WEB SITE.
WHAT IS THEIR PITCH?
THEIR PITCH IS WOULDN'T YOU LIKE TO KNOW HOW MANY USERS SCAN YOUR CODES?
AND WOULDN'T YOU LIKE TO KNOW HOW MANY USERS DO IT MORE THAN ONCE?
NOW YOU CAN.
THAT'S THEIR PITCH.
AND, YOU KNOW, THEY ALSO PROVIDE ALL METRICS AND DETAILED, YOU KNOW, INFORMATION TO HELP YOU, THE ADVERTISING MANAGER FOR BED, BATH, AND BEYOND, CONVINCE YOUR BOSS THAT

WANT MONEY YOU SPENT ON THIS ADVERTISING WAS WORTH IT.
THEY'RE PROVIDING METRICS AND DETAILS AND GRAPHS AND CHARTS AND DATA TO HELP THEIR CUSTOMER, BED BATH AND BEYOND, UNDERSTAND THE VALUE OF THE ADVERTISING THEY PURCHASED.
THIS IS IT A BIG DEAL IN THE ADVERTISING WORLD BECAUSE, YOU KNOW, IN TRADITIONAL TV OR NEWSPAPER ADVERTISING, YOU DON'T GET THESE KINDS OF FINE-GRAINED METRICS.
YOU KNOW, YOU PUT AN ADVERTISEMENT IN THE PRINT "NEW YORK TIMES," YOU KNOW SOMETHING ABOUT WHO IS GOING TO LOOK AT IT, BUT YOU DON'T REALLY NECESSARILY KNOW HOW THEY'RE GOING TO RESPOND.
SO THE ALL TH RESULTS THIS MIGHT BE A FAMILIAR LOOKING DIAGRAM, THEY DON'T SERVE UP THE CONTENT THEMSELVES.
THEY REDIRECT ME TO A IT COMPANY CALLED NET BISCUITS, YOU KNOW, WHO-- WHAT THEY DO IS THEY ACTUALLY SERVE UP THE WEB PAGE, WHICH IS A LITTLE PICTURE, THEN I CAN CAN CLICK ON "PLAY" AND HAVE A VIDEO OF THIS HELPFUL PERSON EXPLAINING HOW TO USE THIS KITCHEN GADGET.
AND SO THERE'S ALL THESE COMPANIES INVOLVED IN DEALING WITH A SIMPLE LITTLE QR CODE THAT I SCANNED OUT OF AN ADVERTISEMENT, AND I'VE USED BE CURIOUS JUST AS AN EXAMPLE, BUT REALLY, THIS IS HOW A LOT OF AD CLICKS WORK.
SO COOKIES.
EVERYBODY USES COOKIES.
EVERYBODY WEB SITE YOU EVER VISIT IS GOING TO SET A COOKIE.

WHAT DO COOKIES-- HOW DO YOU ASSOCIATE MEANING WITH THESE COOKIES?
WELL, IT'S EASY TO ASSOCIATE A COOKIE WITH WHERE YOU SAW AN ADVERTISEMENT.
BECAUSE, YOU KNOW, THAT'S-- YOU GENERATE THE COOKIE FOR WHERE THE ADVERTISEMENT WENT, SO, THEREFORE, IF YOU GET IT BACK, IT'S VERY CLEAR YOU CAN DO THESE KINDS OF TRACKING.
IT'S HARDER TO ASSOCIATE A COOKIE WITH YOUR GEOLOCATION.
IN THE CASE BE CURIOUS, THEY ASK FOR YOUR GEOLOCATION.
ALTHOUGH, WITH IP GEOLOCATION, JUST BY LOOKING AT YOUR IP ADDRESS THEY MIGHT BE ABLE TO FIGURE OUT SOMETHING ABOUT WHERE YOU ARE.
JUST A FOOTNOTE, FROM MY HOME COMPUTER I WENT TO IPTODLOCATION.COM AND GAVE ME A SET OF COORDINATES IN DOWNTOWN HOUSTON AND SAID YOU'RE HERE.
THEY WERE OFF BY ABOUT EIGHT MILES.
SO MY IP ADDRESS FROM MY HOME COMPUTER, THEY WERE ABLE TO IDENTIFY MY LOCATION WITHIN ABOUT EIGHT MILES.
THAT'S REASONABLY-- THAT'S NEITHER OUTRAGEOUSLY WRONG OR OUTRAGEOUSLY CORRECT.
THAT'S WHAT YOU MIGHT EXPECT.
NOW, IT'S HARDER TO ASSOCIATE A COOKIE WITH A REAL-WORLD IDENTITY.
REGARDLESS, WEB SITES CAN EASILY STORE THE INFORMATION THEY GATHER AND AGGREGATE IT TOGETHER.
SO EVEN IF A KEEK IS NEVER ATTACHED TO YOUR NAME OR YOUR ADDRESS, A COOKIE CAN STILL IT

BE ASSOCIATED WITH YOUR BEHAVIOR
OVER TIME.
YOU KNOW, IF THERE'S A COOKIE
THAT THE "NEW YORK TIMES" GIVES
YOU, EVEN IF YOU'RE SURFING
ANONYMOUSLY, THEY CAN FIGURE OUT
THAT THIS PARTICULAR ANONYMOUS
PERSON HAS A HABIT OF READING
THE SPORTS ARTICLES.
OR THIS PARTICULAR IF ANONYMOUS
PERSON HAS A HABIT OF READING
THE TRAVEL ARTICLES AND THEY
COULD PERHAPS USE THAT TO TARGET
ADVERTISING.
SO WE HEARD MENTION THIS MORNING
OF SOCIAL WIGITS, THAT VERY SAME
"CHOOSE NISSAN" WEB SITE HAS
THIS UP IN THE CORNER.
SO APPARENTLY THERE ARE 159
PEOPLE IN THE ENTIRE WORLD WHO
LIKE NISSAN.
AND THEY-- SO NISSAN IS PUTTING
THIS UP THERE.
WHY ARE THEY DOING THIS?
THERE WERE DIFFERENT VARIATIONS
ON SOCIAL WIGITS.
SOME OF THEM WILL NAME YOUR
FRIENDS-- "YOUR FRIEND BOB LIKES
NISSAN."
AND THE THEORY IS-- "IF BOB
LIKES NISSAN.
I'LL GO OUT AND GET ONE."
I DON'T KNOW.
BUT THESE SOCIAL WIGITS ARE A
LOT LIKE THOSE IMAGES.
THEY HAVE JAVA SCRIPT OR IMAGES
SERVED UP BY THIRD PARTIES THAT
ARE DISPLAYED INSIDE SOME WEB
SITE.
AND, YOU KNOW, THAT-- THAT 159
LIKES FROM FACEBOOK, THAT WAS
GENERATEDLY BY FACEBOOK.
THERE'S A LITTLE PIECE OF JAVA
SCRIPT FROM FACEBOOK RUNNING
INSIDE THIS NISSAN WEB SITE.
AND SO WHAT THAT MEANS IS THAT

FACEBOOK KNOWS NOW THAT YOU VISITED NISSAN.
WHAT THEY CHOOSE TO DO WITH THAT INFORMATION I'M NOT SURE.
BUT THEY'RE CAPTURE AGO THAT INFORMATION IS AVAILABLE TO THEM TO BE CAPTURED AND AGGREGATED.
LIKEWISE, THERE'S SOMETHING CALLED WEB BUGS OR WEB BEACONS.
SO wired.com SEEMS TO BE THE KING OF THIS.
THEY HAVE 13 DIFFERENT WEB BUGS WHEN YOU VISIT THEIR HOME PAGE.
THERE'S A WONDERFUL OPEN SOURCE-- NOT OPEN SOURCE BUT FREELY AVAILABLE IT TOOL CALLED GHOST READ THEY CAN USE WHICH BLOCKS ALL OF THESE THINGS BUT GIVES YOU A LIST OF THEM.
FIRST OFF, WHAT IS A WEB BUG?
A WEB BUG IS TYPICALLY A SINGLE PIXEL IMAGE, A 1X 1PIXEL IMAGE THAT IS TRANSPARENT AND THEY'LL BE PILED IN A CORNER WHERE YOU DON'T SEE THEM.
IF YOU VISIT wired.com IF WILL LOAD AN IMAGE FROM GOOGLE ANALYTICS AND OTHER LITTLE COMPANIES AND EVERY ONE GETS A SHOT AT PUTTING A COOKY AND TRACK YOU.
IN FACT, WEB BUGS CAN PERHAPS EVEN TRACK YOU IF YOU TURN COOKIES OFF.
THAT'S A MORE TECHNICAL I'M NOT GOING TO HAVE RIGHT NOW.
THEY'RE EFFECTIVELY JUST LIKE ADVERTISEMENTS EXCEPT THEY'RE INVISIBLE.
THEY CAN MEASURE WHERE YOU REQUEST AND AGGREGATE BEHAVIOR ABOUT YOU, NOT NECESSARILY DAN WALLACH, BUT WHOEVER IT WAS WHO WENT THERE, ALSO WENT THERE.
AND AGAIN, THROUGH THAT

AGGREGATION THEY CAN LEARN
THINGS ABOUT YOU AND CREATE A
PROFILE.
EVEN THIRD-PARTY PAYMENT
SERVICES CAN LEARN A LOT ABOUT
YOU.
SO, YOU KNOW, IF I WENT TO GO
AND BUY THAT CAMERA, MAYBE I
WOULD GO TO BNH PHOTO IN NEW
YORK, WHICH I LIKE DOING
BUSINESS WITH.
AND I GO TO CHECK OUT AT BNH,
THEY SAY YOU CAN GIVE US YOUR
CREDIT CARD NUMBER OPENER BUY
WITH GOOGLE WALLET OR CHECK OUT
WITH PAYPAL.
THESE ARE SERVICES THAT A LOT OF
CONSUMERES, MYSELF INCLUDED,
REALLY LIKE, BECAUSE I DON'T
HAVE TO GIVE ME CREDIT CARD
NUMBER TO A VENDOR WHO I DON'T
TRUST.
SEVERAL YEARS AGO I BOUGHT A
LITTLE BLUETOOTH CONTRAPTION.
>> AND BOUGHT IT THERE WHOEVER
HAD THE LOWEST PRICE I COULD
FINDER SO I SPENT $5ULOSIS MY
LITTLE BLUETOOTH CONTRAPTION,
AND A COUPLE WEEKS LATER, THERE
WAS A $500 FRAUDULENT CHARGE TO
MY CREDIT CARD FROM SOME COMPANY
THAT SELLS CELL PHONE
EQUIPMENT.
I'M LIKE AH, HM... SO I HAD TO
GET A NEW CREDIT CARD NUMBER,
BLAH, BLAH, BLA REAL PAIN.
WHEREAS IF I COULD DEAL WITH A
COMPANY LIKE THAT INDIRECTLY
THROUGH A PAYMENT SERVICE LIKE
THIS, THEN THERE'S NO CREDIT
CARD NUMBER FOR THEM TO STEAL.
IN RETURN FOR THIS EXTRA USER
PRIVACY I GIVE UP A LITTLE
SOMETHING.
NOW PAYPAL POUR GOOGLE WALLET
LEARNS ABOUT WHO I'M DOING

BUSINESS WITH AND WHAT I'M
BUYING THERE.
AND GOOGLE KNOWS A LOT ABOUT ME
FOR OTHER REASONS BECAUSE THEY
KNOW WHAT I'M SEARCHING FOR, ET
CETERA.
THERE'S A TRADEOFF HERE.
I'M GETTING A LITTLE BIT BETTER
SECURITY AGAINST CREDIT CARD
FRAUD, AND IN RETURN, SOMEBODY
IS LEARNING A LITTLE BIT MORE,
AGGREGATING A LITTLE BIT MORE
ABOUT ME.
SO ONCE THESE COMPANIES HAVE
BUILT UP A USER PROFILE, WHICH
MAY OR MAY NOT HAVE YOUR NAME,
WHAT CAN THEY DO WITH THAT USER
PROFILE?
HOW CAN I MONETIZE ALL THIS
INFORMATION I HAVE ABOUT YOU?
WELL, USER VISITS A WEB SITE.
THE WEB SITE WANTS TO SHOW AN
ADVERTISEMENT TO YOU.
BASED ON ALL OF THIS INFORMATION
THAT'S BEEN COLLECTED, THAT
PROFILE OF YOU IN SOME CASES IS
PUT UP FOR AUCTION.
"I'VE GOT AN AD-- I'VE GOT THE
OPPORTUNITY TO DISPLAY AN AD TO
A USER WHO HAS THE FOLLOWING
ATTRIBUTES-- HE LIKES CAMERAS.
HE LIKES CARS.
HE RESIDENT THE "NEW YORK
TIMES."
MAYBE HE'S RICH.
GO FOR IT!"
NOW I MIGHT BE MORE ATTRACTIVE
TO A HIGH-END CAR VEND RATHER
THAN A LOW-END CAR VEND.
WHO KNOWS?
ANYWAY, THEY ACTUALLY HAVE A
LITTLE AUCTION.
AND THIS AUCTION HAPPENS IN THE
SPACE MILLISECONDS.
AND AT THE END, WHOEVER WINS
THE AUCTION GETS TO DISEPARATE

DISPLAY THE AD TO ME.
IT'S AMAZING.
THE ARTICLE THAT JUST HAPPENED OVER THE WEEKS IN "NEW YORK TIMES" MAGAZINE EXPLAINS IN LOVELY DETAIL HOW THIS MARKET WORKS.
THERE ARE A LOT OF PLAYERS IN THE ADVERTISING MARKET.
I LOVE THIS DIAGRAM.
THIS CAME OUT ROUGHLY TWO YEARS AGO.
BUT IT TELLS YOU JUST HOW FINE GRAINED THIS MARKET IS WITH LOTS OF LITTLE COMPANIES SELLING ALL KINDS OF LITTLE SERVICES.
THIS IS A TWO-YEAR-OLD DIAGRAM.
I'D LOVE TO HAVE A MORE CURRENT ONE.
IF ANY OF YOU HAVE A MORE CURRENT VERSION OF THIS DIAGRAM, PLEASE CALL ME.
OKAY, ANYWAY.
FOR THOSE OF YOU ONLINE, YOU CAN LOOK THROUGH THIS THING WITH A MAGNIFYING GLASS.
IT'S JUST A FANTASTIC LITTLE DIAGRAM.
ALL RIGHT.
IN THE TIME THAT'S LEFT, I WANT TO GO OVER A HAND FULL OF LITTLE TRICKS AND DETAILS AND OTHER LITTLE BITS OF PIECES THAT ARE RELEVANT TO OUR DISCUSSION.
FIRST, WHAT ABOUT YOUR OPERATING SYSTEM VENDOR?
WHAT ABOUT THE COMPANY THAT CONTROLS THE PHONE OR THE COMPUTER OPERATING SYSTEM THAT YOU'RE USING?
WELL, THE PLATFORM HAS A LOT OF CONTROL OVER HOW PEOPLE USE IT.
PROBABLY THE MOST NOTABLE EXAMPLE IS APPLE WHO VERY STRICTLY REGULATES WHAT IS AND IS NOT ALLOWED IN THE APPLE

APP STORE.
THERE WAS A CASE ROUGHLY TWO YEARS AGO WHERE THEY TRIED TO CRANK DOWN ON WHAT ADVERTISING WAS ALLOWED TO COLLECT.
NOW, YOU COULD ARGUE THAT THIS IS A PRO PRIVACY THING.
APPLE WAS RESTRICTING ADS' ABILITY TO DO ANALYTICS.
BUT THERE'S THIS WONDERFUL QUOTE HERE, "ADS DON'T EXIST WITHOUT ANALYTICS" SAYS A MOBILE AD EXECUTIVE.
CAN'T MEASURE IT.
CAN'T BILL IT.
SO-- AND OF COURSE APPLE WAS OFFERING THEIR OWN AD SIADS, AS AN ALTERNATIVE.
YOU CAN LOOK AT THEM IN A LOT OF DIFFERENT WAYS.
THIS MORNING THE COMMISSIONER MENTIONED ISPs.
ISPs, OR FOR THAT MATTER, YOUR CORPORATE IT DEPARTMENT, CONTROLS YOUR PIPE FROM YOUR 10 OR COMPUTER TO THE INTERNET.
WHAT CAN THEY DO?
BROADLY SPEAKING, THEY CAN DO TWO DIFFERENT CLASSES OF SURVEILLANCE.
THEY CAN DO PASSIVE SURVEILLANCE, WHICH GOES BY THE NAME DEEP-PACKET INSPECTION.
IF YOUR TRAFFIC IS UNENCRYPTED, THEY CAN SEE IT.
AND, OF COURSE, YOUR ISP KNOWS EXACTLY WHO YOU ARE AND WHERE YOU LIVE BECAUSE THEY HAVE A BUSINESS RELATIONSHIP WITH YOU.
ISPs HAVE THE ABILITY TO DO LOGGING, TO SAVE THINGS, WHICH CAN BE USEDLY FOR LAW ENFORCEMENT OPENER FORENSIC PURPOSES.
TO PICK ONE EXAMPLE, A LARGE OIL COMPANY IN HOUSTON, WHICH I

WON'T NAME, STORES EVERY PACKET
THAT GOES OVER THEIR INTERNET
GATEWAY FOR A MONTH, EVERY
SINGLE NETWORK PACK OAT THEIR
ENTIRE INTERNET GATEWAY FOR A
SIGNIFICANT-SIZED OIL COMPANY
THEY SAVE FOR ONE MONTH.
NOW, WHY DO THEY DOLL THIS?
MOSTLY FOR FORENSIC PURPOSES.
THAT WAY IF SOME MACHINE IS
COMPROMISED, THEY CAN GO BACK
AND FIGURE OUT HOW AND WHY.
YOU CAN IMAGINE THIS BEING USED
FOR ALL KINDS OF OTHER
PURPOSES.
IT'S TECHNICALLY FEASIBLE TO
SAVE A HUGE AMOUNT OF DATA.
HARD DRIVES ARE BIG AND CHEAP .
THE OTHER CLALSZ OF
SURVEILLANCE, OR THURING CLASS
OF ISP ENGAGEMENT-- I'M GOING TO
USE THE TERM "ACTIVE ENGAGE."
THIS COULD INCLUDE
BLACKLISTING.
AN ISP MIGHT BLACKLIST A SET OF
WEB SITES SAY PIRATE BAY.
WE DON'T WANT YOU TO GO TO
PIRATE BAY.
OPENER THEY MIGHT BLACKLIST AN
ENTIRE PROTOCOL, LIKE BIT TARD.
THERE ARE EXAMPLES OF BOTH.
PERHAPS LESS INVASIVE, MANY
ISPs DO WHAT'S CALL
TRANSPARENT PROXY CACHING WHICH
IS A FANCY WAY OF SAYING YOU'RE
ASKING FOR THAT IMAGE OVER
THERE?
I ALREADY HAVE IT SAVED.
HERE, I'LL GIVE YOU MY COPY.
THIS IS A PERFORMANCE OPT
MISSATION THAT MANY ISPS AND
COMPANIES USE TO SAVE
BANDWIDTH.
COMPLETELY LEGITIMATE AND
THERE'S A LOT OF INFRASTRUCTURE
NOW TO DEAL WITH IT.

PARTICULARLY COLLEGE CAMPUSES,
THERE'S GONE BANDWIDTH
TRACKING.
YOU'RE A BANDWITth HOG AND
WE'RE GOING TO SLOW YOU DOWN.
AND TRAFFIC SHAPING CAN BE DONE
IN A RELATIVELY AGNOSTIC WAY-- I
DON'T CARE WHAT YOU'RE DOING.
YOU'RE GENERATING A LOT OF
PACKETS SO I'LL SLOW YOU DOWN.
OPENER IT CAN BE DONE A NF A
MORE FORECASTED WAY.
YOU'RE ALLOWED TO HOG PACKETS TO
THERE BUT NOT THERE.
MANY COMPANIES WILL DO THIS
TRICK IF YOU MAKE AN ENCRYPTED
CONNECTION TO SOME WEB SITE,
THEY ACTUALLY TERMINATE THE
ENCRYPTION AT THE GATEWAY AND
REENCRYPT IS BACK AT YOUR
BROWSER SO THEY CAN OBSERVE ALL
OF YOUR ENCRYPTED TRAFFIC.
THAT MIGHT SOUND INVASIVE,
BUT, YOU KNOW, IF YOU ARE THE
AFORM MENTIONED UNMENTION LARGE
OIL COMPANY, THIS IS A WAY OF
MONITORING IT WHAT'S GOING ON.
THEY SEE IT AS A WAY OF
PROTECTING THEIR USERS FROM A
SECURITY COMPROMISE.
AGAIN, YOU COULD SEE IT FOR
OTHER ISSUES.
AND IN SOME CASES, WE'VE SEEN
ACTIVE ENGAGEMENT WHERE SOMEBODY
TRIES TO ATTACK A WEB SITE.
A PARTICULARLY NOTABLE EXAMPLE
WAS PREREVOLUTIONARY-- AND I
MEAN THE RECENT ARAB SPRING
REVOLUTION IN TUNISIA-- THE
TUNISIAN GOVERNMENT WAS TRYING
TO GET IN BETWEEN THE TUNISIAN
PEOPLE AND FACEBOOK BECAUSE THEY
WERE USING FACEBOOK FOR
ORGANIZING, AND THE TUNISIAN
GOVERNMENT WAS TRYING TO CAPTURE
ALL THE FACEBOOK USER NAMES AND

PASS WORDS AS A METHOD OF
SURVEILLING THEIR POPULOUS.
PERHAPS MOST FAMOUSLY, THERE WAS
A NOW-DEFUNCT COUPLE CALLED
NECKUE AD, AND NECKUE AD HAD A
RELATIONSHIP WITH CHARTER
COMMUNICATIONES, A CABLE
COMPANY/ISP.
AND THEIR DEEP-PACKET INSPECTION
TECHNOLOGY WAS SOPHISTICATE
ENOUGH TO BE ABLE TO SAY,
"THERE'S A WEB SITE GOING BY.
I'M GOING TO INSERT MY OWN
ADVERTISEMENT IN IT."
SO, YOU KNOW, THE-- THERE'S AN
AD APPEARING IN THE MIDDLE OF A
WEB SITE THAT THE WEB SITE
DIDN'T PUT THERE.
THAT WAS-- THERE WERE LAWSUIT,
ET CETERA.
NEBUAD WENT OUT OF BUSINESS.
THIS.
>> IN THE WORD OF ADVERTISEMENT
FRAUD IS A BIG DEAL.
IF I CAN PUT UP YOUR WEBSITE AND
GENERATE FAKE VIEWS OR FAKE
QUICKS THEN I CAN MAKE MONEY
FROM YOU.
I CAN STEAL YOUR MONEY WITH
TKPRAUD AOU LENT ADVERTISING
CLICKS OR FRAUDULENT ADVERTISING
VIEWS.
FIRST OFF THERE IS A SIDE
COMPANIES TO HELP PEOPLE
GENERATE ACCURATE MEASURE
PHEPBTS IN THE FACE OF THIS SORT
OF FRAUD.
GENERALLY SPEAKING THERE ARE TWO
DIFFERENT KAOEUPBSDZ OF SECURITY
MEMBER TPHEUFPLZ PEOPLE RELY ON.
EITHER BROWSER BEHAVIORS THAT
DISTINGUISH A FROM A FRAUDULENT
TRICK.
THE OTHER TRICK ARE BIG DATA
ANALYTICS ON THE SERVING SIDE.
ONE OF MY FORMER GRAD STUDENTS

WORKS AT GOGGLE.
THROUGH THE LIBERAL APPLICATION OF BEER I HAVE LEARNED JUST HOW THEY DO IT.
THEY DON'T PAY RIGHT AWAY.
THEY INSTEAD COLLECT A LOT OF DATA ABOUT THE CLICKS.
THEN IN BULK THEY CAN SAY THIS PATTERN LOOKS FRAUDULENT.
THIS LOOKS LEGITIMATE.
THE DETAILS ARE HUSH, HUSH SECRET.
IF GOOGLE WAS TO PUBLISH HOW THEY DO IT THEN THE ADVERTISERS AND CLICK FRAUDERS WOULD ADJUST THEIR BEHAVIOR.
IT'S VERY MUCH A LEAP FROGGING SITUATION.
THERE ARE A LOT OF TECHNOLOGY AVAILABLE TODAY TO USERS WHO WISH TO GRAB KROLL BACK FROM THEIR OWN ADVERTISING.
I RUN AD BLOCK PLUS.
IT'S ABOUT DELETING ADS, YOUR BROWSER NEVER USES THEM.
AND GHOSTERY FOCUSES ON THE WEB BUGS.
THEY WORK BY KEEPING A BLACKLIST LIFT IN THE BROWSER.
THE BROWSER WON'T GO THERE AT ALL.
THIS HAS NOISE PRIVATE SEE PROTECT EUGS FOR ME AND IT MAKES THE WEB GO FASTER.
IT'S A NICE BENEFIT IF YOU'RE ON A SLOW CONNECTION.
SOMETHING WE'RE TALKING MORE ABOUT IS THE STANDARD, DO NOT TRACK.
IT'S AN OPTIONAL MESSAGE SENT BY THE BROWSER THAT SAYS, PLEASE DON'T TRACK ME.
THEN WHAT DOES THAT MEAN, GOOD QUESTION.
THERE ARE A FAMILY OF TECHNOLOGIES PROTECTING YOUR

PRIVACY.
-- USES A ONION GRAPHING TECHNIQUE.
IT ALLOWS TO ROUTE YOU THROUGH MULTI IMMEDIATE.
>>> POPS.
SO THE FINAL DESTINATION DOES THE KNOW WHO YOU ARE OR WHERE YOU'RE GOING.
IT'S GOOD FOR PRIVACY USED IN PLACES LIKE INSIDE CHINA OR IRAN TO GET OUT WITHOUT THE GREAT FIREWALL OF CHINA BEING ABLE TO TELL WHERE YOU'RE GOING.
IN RAOURP THERE ARE NEW COOKIE RULES THAT REQUIRE WEB SITES TO GIVE NOTICE OF USERS OF VARIOUS KINDS.
I HAVE INCLUDED ONE OF THOSE NOTICES AT THE BOTTOM OF THE SCREEN.
TO MOST THIS IS A COLLECTION OF GREEK LETTERS THAT THEY DON'T UNDERSTAND.
WHAT IS THIS THING, GET THIS OUT OF MY FACE.
USERS ARE BAD AS UNDERSTANDING THE MESSAGES.
WHATEVER, GO AWAY, LEAVE ME ALONE.
THERE ARE REGULATORY TEETH BEHIND THIS WHICH IS CAUSING --
IF YOU VISIT EUROPEAN FOCUSED WEB SITES YOU SEE THESE THINGS INCREASINGLY.
I HAVE LINKED TO A WEBSITE TO LEARN MORE ABOUT THE EURO COOKIE RULES.
I HAVE POINTED OUT A ROEPBY.
IF YOU WANT THE USER TO SAY "NO DON'T SET THIS, LEAVE ME ALONE" YOU MAY REMEMBER THAT BY SETTING A COOKIE THAT SAYS "LEAVE ME ALONE."
THE WAY TO DENY COOKIES MAY REQUIRE A COOKIE IN THE

PREFERENCES.
COOKIES ARE A GENERAL PURPOSE
MECHANISM.
THEY WERE INVENTED TO "FIX THE
STATE LESS NATURE OF THE HTTP
WEB PROTOCOL."
THIS IS HOW AMAZON REMEMBERS
IT'S YOU.
AS I CLICK AROUND AMAZON I WANT
AMAZON TO KNOW IT'S ME ADDING
THOSE THINGS TO THE SHOPPING
CART.
THAT WAY IN THE END THE SHOPPING
CART HAS EVERYTHING I BOUGHT.
NO COOKIES, NO SHOPPING CART.
THE TECHNOLOGY GOES ARE FUND
MENTAL TO THE WAY ALL KINDS OF
WEB SYSTEMS WORK.
YOU CAN'T JUST BAND COOKIES.
WHAT MAKES THEM A PRIVATE SEE
CONCERN IS WHEN THEY HAVE A LONG
LIFE LINE LIKE TEN YEARS FROM BE
CURIOUS.
WHO KNOWS WHAT THEY'RE MEASURING
ABOUT ME.
AND PARTICULARLY IF THEY'RE
SENSITIVE INFORMATION THAT
THEY'RE LEARNING.
MAYBE I HAVE A MEDICAL
CONDITION.
I'M READING A WEBSITE TO LEARN P
THAT MEDICAL CONDITION.
THAT'S A INFERENCE I DON'T
NECESSARILY WANT PEOPLE TO MAKE
ABOUT ME.
I MIGHT CREDIT THAT TO BE
PRIVATE.
>> A LOT OF MY CURRENT RESEARCH
IS FOCUSED ON SMART PHONES.
I WILL GIVE A ONE SLIDE PITCH
FOR.
THIS MOST PHONE APPS USE THE WEB
INSIDE OF THEM.
SO, THERE IS A CONVERGENCE GOING
ON.
A PHONE APP AND WEBPAGE ARE

ALMOST BUT NOT QUITE THE SAME THING.
THERE ARE INTERESTING DIFFERENCES.
THERE ARE, THERE ARE MORE COMPLICATED PERMISSIONS GOING ON.
YOUR PHONE ASKS YOU FOR PERMISSIONS TO DO THINGS THAT ARE SENSITIVE.
THAT'S GOING TO HAPPEN ON THE WEB AS WELL.
LIKEWISE ADVERTISING IN YOUR PHONE IS USED WITH MANY OF THE SAME MECHANISMS.
I'M GOING TO SKIP AHEAD AND MENTION THE EXTRA PERMISSIONS IN THE PHONE CAN LEAD TO SURPRISING RESULTS.
FOR EXAMPLE PATH GOT IN HOT WATER WHEN THEY UP LOADED YOUR ADDRESS BOOK.
YOUR ENTIRE CONTACTS LIST THROUGH THE SERVER.
THERE IS A WONDERFUL QUOTE FROM THE CEO.
HOW COME YOU DIDN'T ASK FOR PERMISSION BEFORE UP LOADING THE USERS ADDRESS BOOK.
THIS IS THE INDUSTRIES BEST PRACTICE AND IT WASN'T DISCUSSED.
SO, NOBODY TOLD US THIS WAS BAD, SO WHAT THE HECK.
THEY GOT INTO A LOST HOT WATER FOR THIS.
SO, MY LAST POINT, IF YOU WANT TO DO A REGULATION YOU SHOULD REGULATE BEHAVIOR NOT MECHANISM.
ONE EXAMPLE, YOUR PHONE HAS WHAT IS SCALED AN IMEI NUMBER.
THAT'S THE UNIQUES NUMBER IDENTIFYING YOUR PHONE TO YOUR CAREER.
THERE ARE OTHER UNIQUE NUMBERS IN THE PHONE AS WELL.

IF YOU REGULATE BASE ON
MECHANISMS TECHNOLOGY PEOPLE
WILL FIND OTHER MECHANISMS.
INSTEAD IF YOU REGULATE
INFORMATION FLOWS YOU CAN TALK
ABOUT FIRST PARTY VERSUS THIRD
PARTY INFORMATION.
SHORT VERSUS LONG TERM.
-- ETCETERA.
IF YOU'RE GOING TO REGULATE
THAT'S HOW YOU WANT TO PHRASE
YOUR REGULATIONS.
WHATEVER YOU DO PLEASE DON'T ASK
THE WEB SITES TO BOTHER THE
USER.
THAT'S JUST A LOSING STRATEGY.
INSTEAD COME UP WITH GOOD
DEFAULTS THAT PEOPLE CAN
IMPLEMENT TO MAKE SENSE.
A BIG IMPORTANT QUESTION IS OPT
IN VERSUS OPT OUT BUSINESS.
HISTORICAL NOTE.
I'M OVERTIME AND DON'T HAVE MUCH
TIME TO TALK ABOUT THIS.
THERE IS A LONG EFFORT TO DO THE
PLATFORM FOR PRIVACY
PREFERENCES.
THIS LARGELY FAILED BECAUSE
THERE WERE NO REGULATORY TEETH
BEHIND IT.
LORI CRANER IS IN THE ROOM.
WHERE DID LORI GO.
THERE SHE IS.
HI, LORI.
SINCE I'M LATE ON TIME I WILL
SAY READ HER BLOG PIECE SHE
WROTE A COUPLE OF DAYS AGO.
IT'S AWESOME.
SUMMING THINGS UP I WILL SAY AS
A GENERAL RULE YOU SHOULD FOCUS
ON, ON BEING AGNOSTIC ABOUT
TECHNOLOGIES.
TALK ABOUT INFORMATION FLOWS AND
OH, BY THE WAY, IF YOU'RE
CAREFUL ABOUT WHAT YOU'RE DOING
YOU MAY HAVE BENEFIT TO

CONSUMERS IN THE OFF-LINE WORLD.
ALL OF THE SAME THINGS WHETHER IT'S CONSUMER PROFILING, CREDIT RATING, FINANCIAL RECORDS, MEDICAL RECORDS, CRIMINAL RECORDS.
IN THE OFF-LINE WORLD THERE ISN'T MUCH DIFFERENCE.
THE LINE BETWEEN THE OFF-LINE AND ON-LINE WORLDS IS BLURRING.
TRACKING IS TRACKING NO MATTER HOW IT'S DONE.
YOU MIGHT AS BE CONSISTENT ON HOW YOU TREAT THE WHOLE BUSINESS.
THANK YOU, VERY MUCH.
[APPLAUSE]
>> WE WILL START BACK HERE AT 10:25.
THANK YOU, VERY MUCH.