

Customizable Security;

Leveraging Big Data for Mobile Security

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RSACONFERENCE
EUROPE 2012

A 'lil Perspective...



1956, a 5 MB HDD by IBM



A smart [?] phone

Hadi's Ego Slide

- Security, Cryptography, Complex System Analysis, ID Management, Asset Protection, Information Assurance Schemes
- Massively Scalable Systems design, implementation, and governance, Vulnerability Assessment, Threat Analysis (VATA)
- Theory of Programming Languages, Formal Languages, Functional Languages, Semantics of Security
- Enterprise & Embedded (Netscape, Sun Microsystems, United States Government, Motorola, eBay, PayPal, NVIDIA...)
- Author of “Web Commerce Security: Design and Development” book, published by John Wiley & Sons



GeForce



Quadro



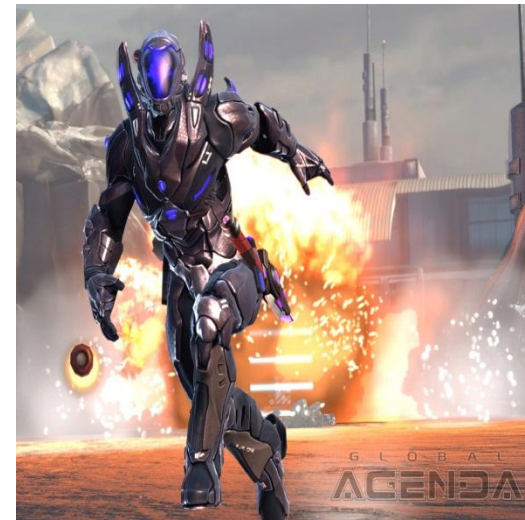
Tegra

Tesla



Agenda

- Data
- Connectivity
- Security
- Conclusion



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Data, Information, Big Data*

- **Data**

Values of qualitative or quantitative variables that belong to a set of items, [often] represented in an organized fashion.

- **Information**

Sequence of symbols that can be integrated as a message that can be recorded as signs or transmitted as signals.

- **Big Data**

Collection of data sets so large and complex that it becomes difficult to process using on-hand database management tools.

* Source: Wikipedia



This Thing Called “data”

■ Data trends

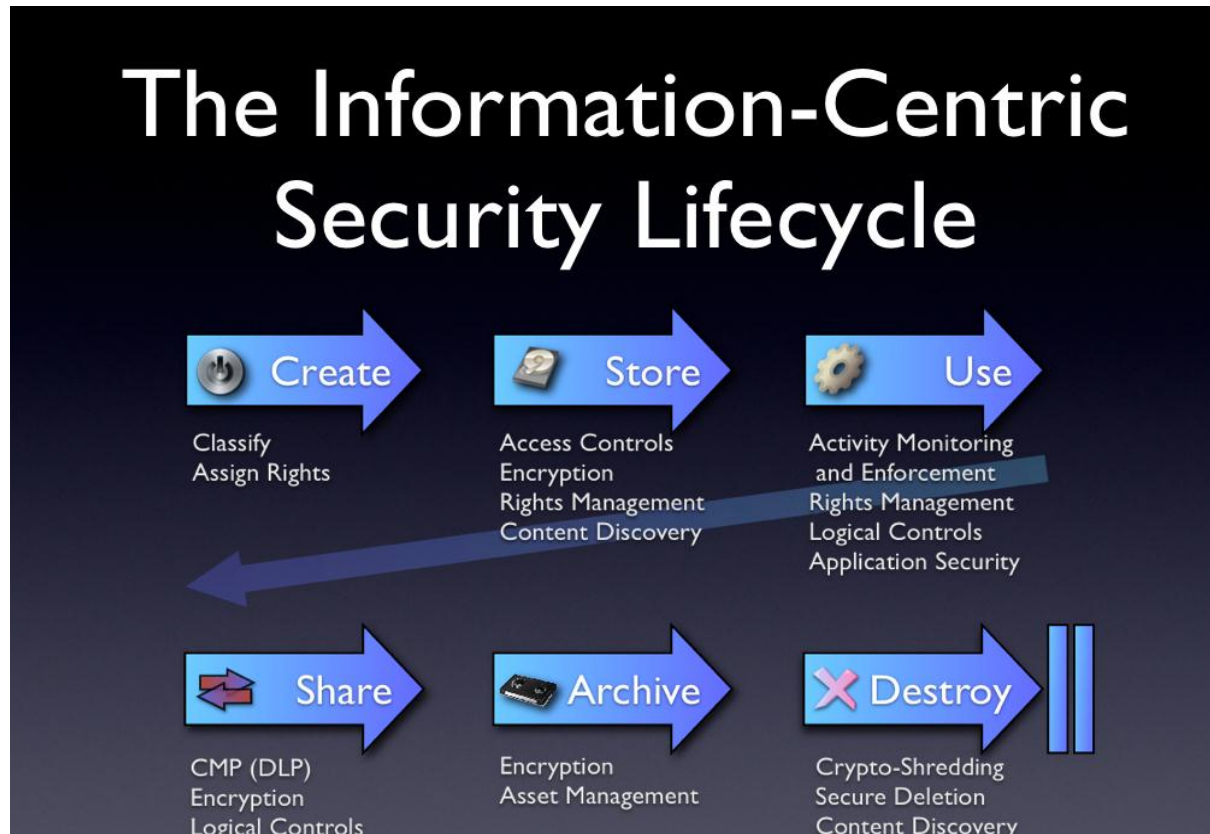
- Gen 1: possession & relation (RDBMS, ODB, etc.)
- Gen 2: collection & search (Lucene, etc.)
- Gen 3: analysis & mining (Hadoop, etc.)
- Gen 4: Intelligence: Nirvana! (single technology?)

■ Trend is Data → Information

- It's no longer the data that you own; it's how you process it



Classical Information-centric Security



Courtesy
Secureosis

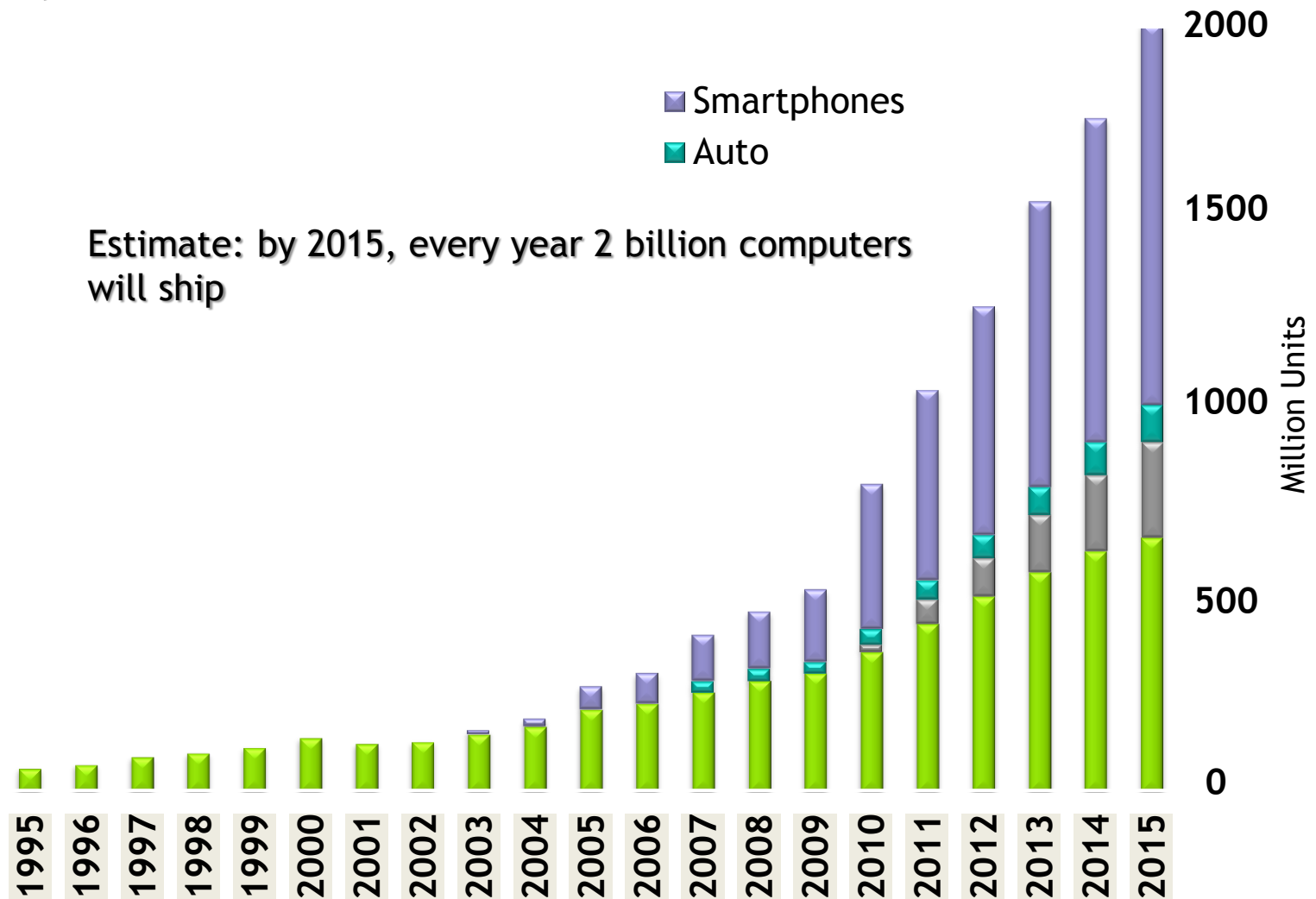
Agenda

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Why It All Matters

Estimate: by 2015, every year 2 billion computers will ship

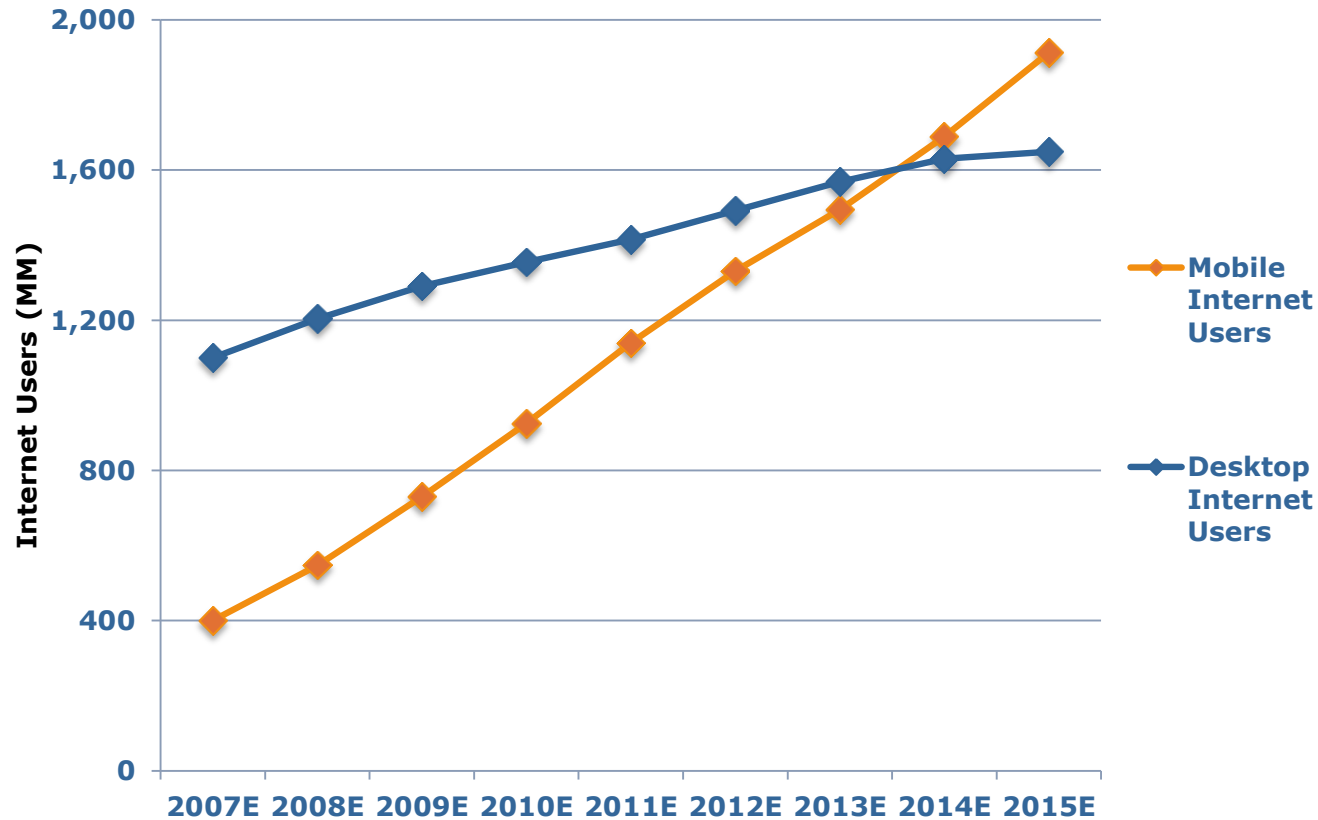


Source: IDC, Gartner, Morgan Stanley



Mobile Usage

Global Mobile vs. Desktop Internet User Projection,
2007 - 2015E



Connection is GOD!

- **Connectivity is growing**
 - Mobile & other Consumer Electronics Devices
- **Data is abundant**
 - Social/Local
- **Data + connectivity (GOD++?)**
 - Mobile → Data *collection* channel
 - Social/Local → Data *relevance*
- **Big Data Math: $2+2 \geq 4!$**
 - Some sharing is “somehow” implied



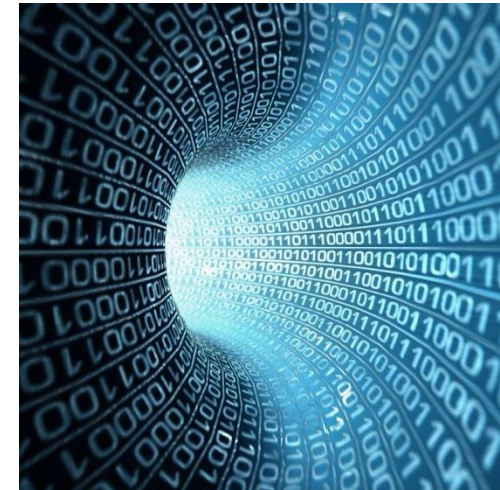
Agenda

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- Connectivity
- **Security**
- Conclusion



Security: Changing Trends

- **Old trend**
 - Data → Information
- **New trend**
 - Information → Intelligence



Data: Security Problems

■ Main issues

- Gen 1 (possession & relation) → Protection
- Gen 2 (collection & search) → Access Control
- Gen 3 (analysis & mining) → Integrity Verification
- Gen 4 (intelligence) → All of the above +

■ + all other security concerns

- Authentication
- Policy enforcement
- ...



Mobile: Security Problems

■ Main vectors

- Devices' hodgepodge (mTPM, TrustZone, HAB, etc.)
- Stacks' *in*security (Android, iOS, WP, etc.)
- Distros' !control (G. Play, App. Store, Ovi, WAC, etc.)
- Usecase explosion (feature creep??)

■ + all other security concerns

- User/device/network authentication
- Data protection (DAR/DIT)
- Privacy
- ...



Big Data + Mobile → Big Mobile??

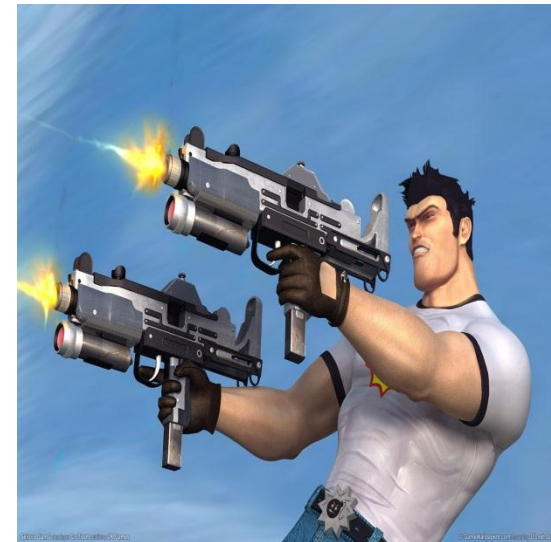
- **Mobile ↔ Big Data**
 - Augmenting security mutually
- **Social, mobile, local → OSINT**
 - Category analysis & intelligence gathering
 - Is all data really good??



In 500,001 B.C., Og creates the world's first category analysis.

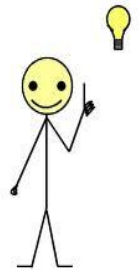
Evolving Paradigms

- **Crowdification of security**
 - The new “Social Security”
- **Gamification of security**
 - Participatory threat assessment
- **Sharing??**
 - Secure, controlled intelligence-sharing
- **Best defense is offense**
 - Overcoming the stigma



Conclusion

- **It's not just the scale**
 - The attack & defense paradigms are changing too
- **Mobile & Big Data: both non-secure**
 - But Mobile + Big Data could make both more secure
 - ...iff done right...
- **New paradigms are forming**
 - Theory, products, business-model, ecosystem, implementation, network topography, actors
 - New order coming!



Thank you!

Q & A

Rate-chart

- » *Answers: \$1*
- » *Correct answers: \$3*
- » *Correct answers requiring thought: \$5*
- » *(dumb looks still free)*

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