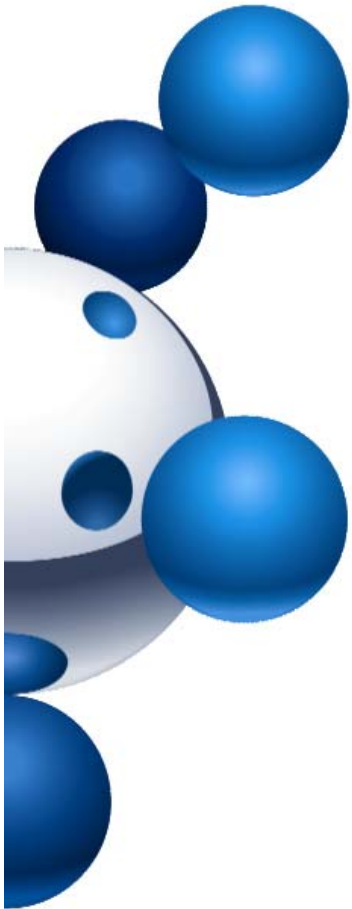


SASOL
reaching new frontiers



Information and Communication Technology Trends

Gerhard Botha – Sasol Enterprise Architecture Team



Contents

- Hardware trends
- Connectivity & mobility trends
- Software trends
- Longer Term Trends
- Questions



Lets first remember...

There is no reason for any individual to have a computer in their home.

Ken Olsen (founder of DEC), 1977

640 k (of memory) should be enough for anybody.

Bill Gates (Microsoft), 1981

Computers in the Future will weigh no more than 1.5 tons.

Popular Mechanics, 1949

This 'telephone' has too many shortcomings to be seriously considered as a means of communications. The device is inherently of no value.

Western Union memo, 1876

SASOL
reaching new frontiers



More hardware bang for your buck

Moore's Law

No of transistors
double every 18 months

Gilder's Law

Bandwidth grows 3x faster
than computing power

Metcalfe's Law

Value of networks rises with
square of the no. of users

Storage Trend

Storage doubles every
22 months

Trunk Speed Trend

Trunk speed doubles every
22 months

Internet Traffic Trend

Internet traffic doubles every
6 months

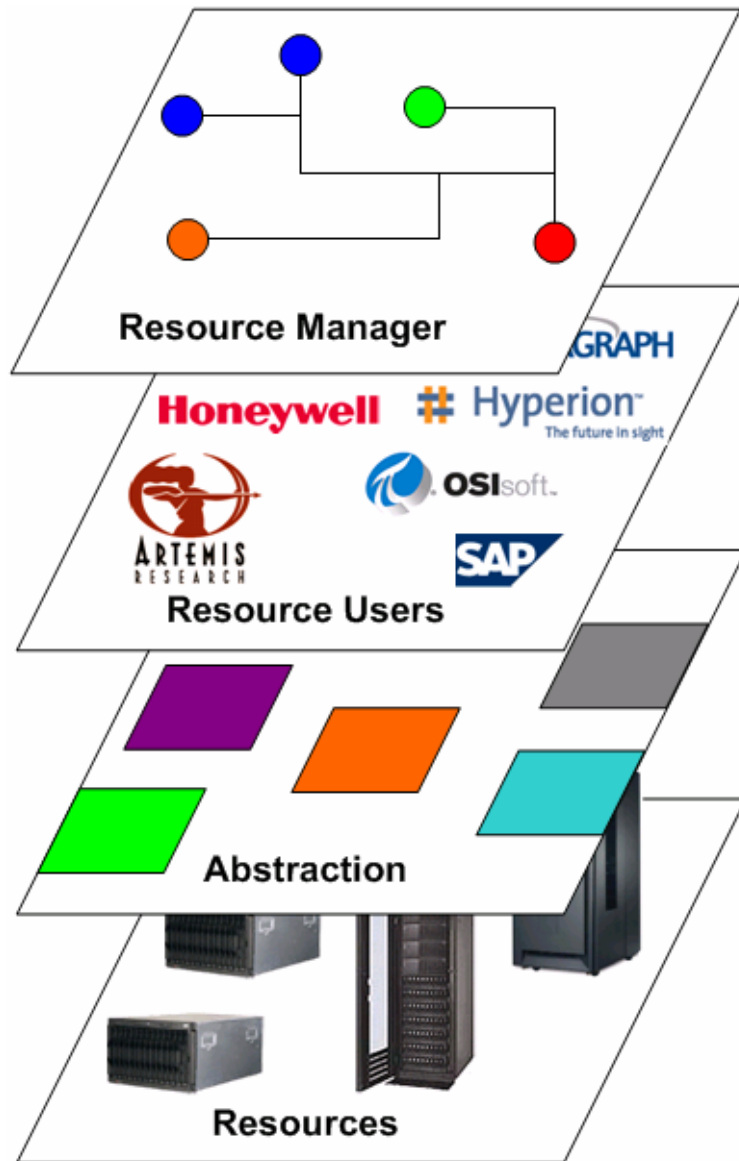
Roberts' Law?

Performance/Price halves
every 21 months

SASOL
reaching new frontiers

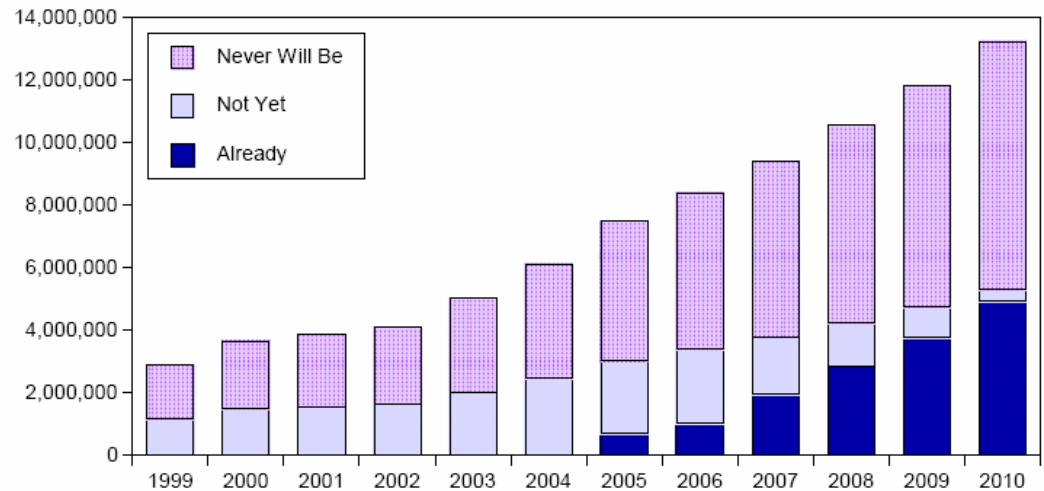


The virtualized world



Obscure physical resources
 Increased utilization
 Increased flexibility
 Lower environmental requirements
 Lower capital requirements

Virtualized Systems



Connectivity & mobile proliferation



MESH



WiMAX



EDGE

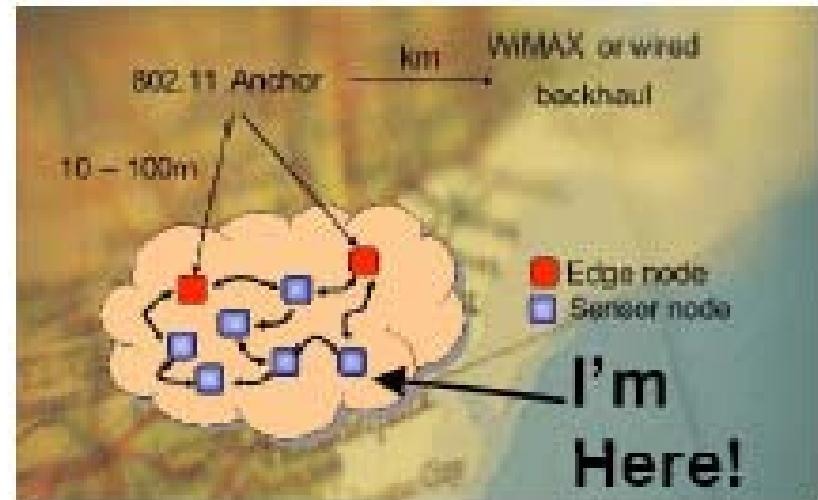
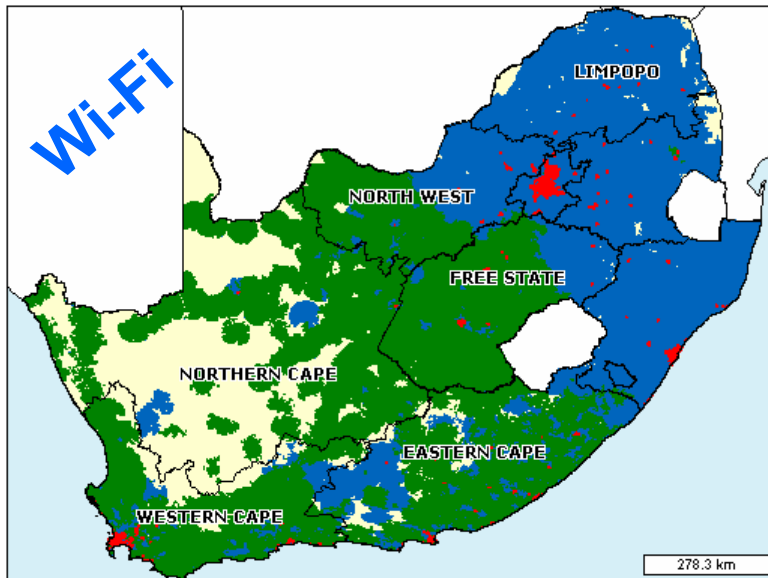
3G



4G



GPRS

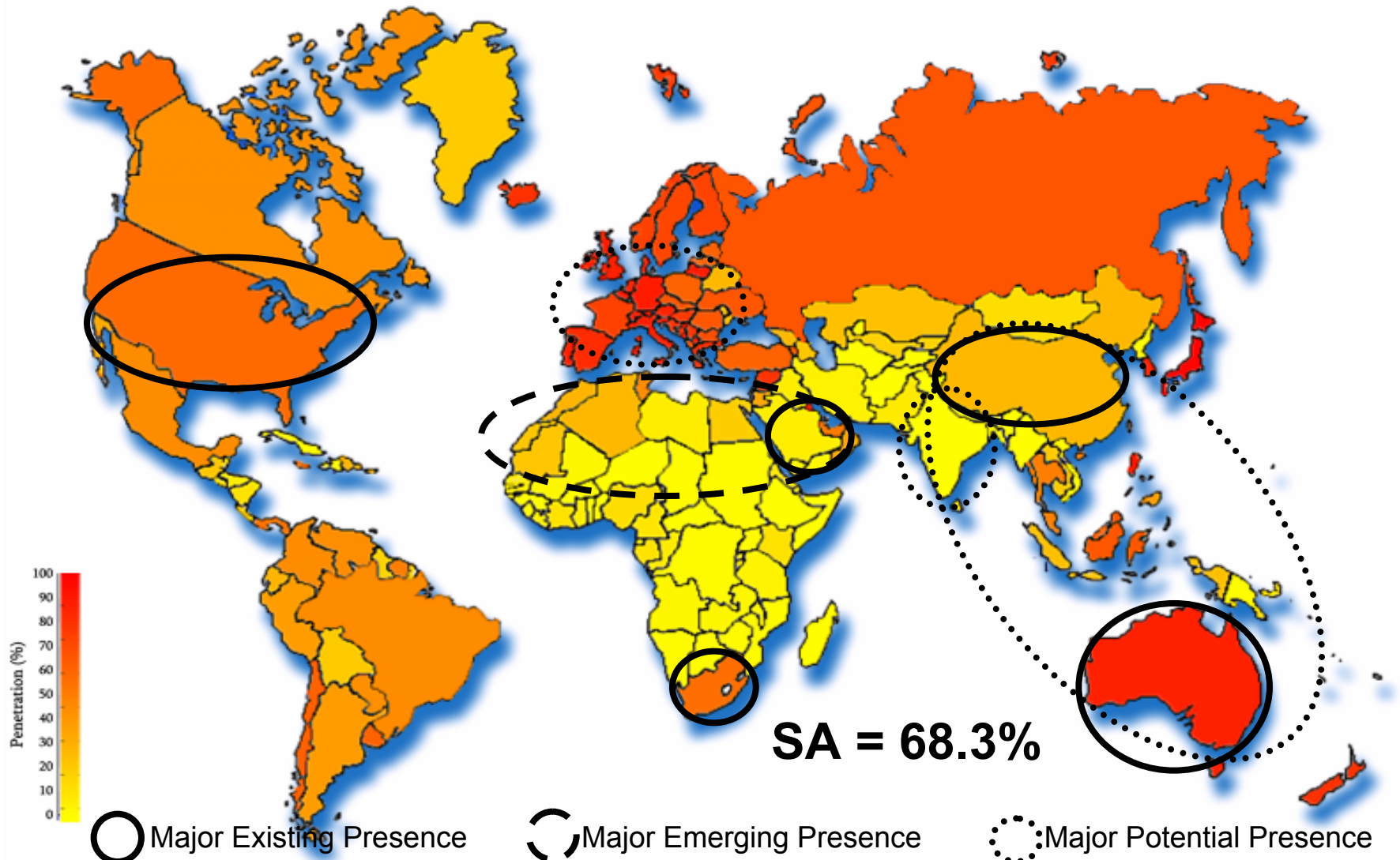


sasol
reaching new frontiers



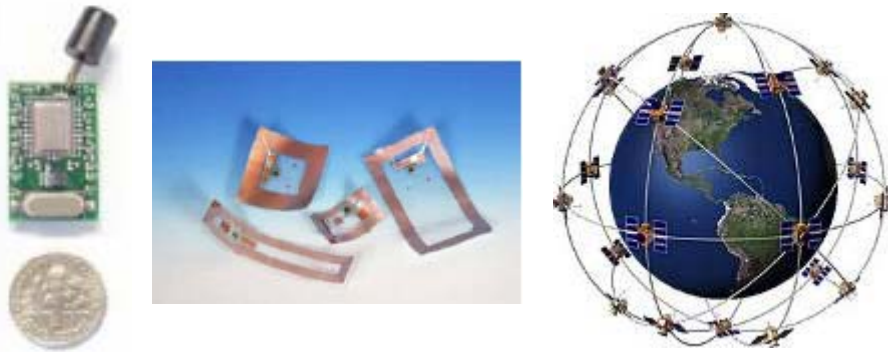
Connectivity & mobile proliferation

World Mobile Penetration Rates (%)



Privacy becomes a myth

Location Aware Services



1980
Control of collection
of data

2010
Control of data
exploitation

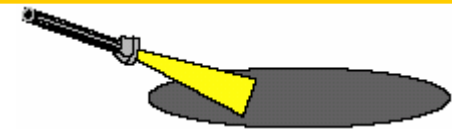
Location Methods:

Wi-Fi
Bluetooth
GPS
Cellular
Mobile Phone
RFID

Data collection:

Digital trails
Traffic analysis
Aggregation &
Correlation
Data mining

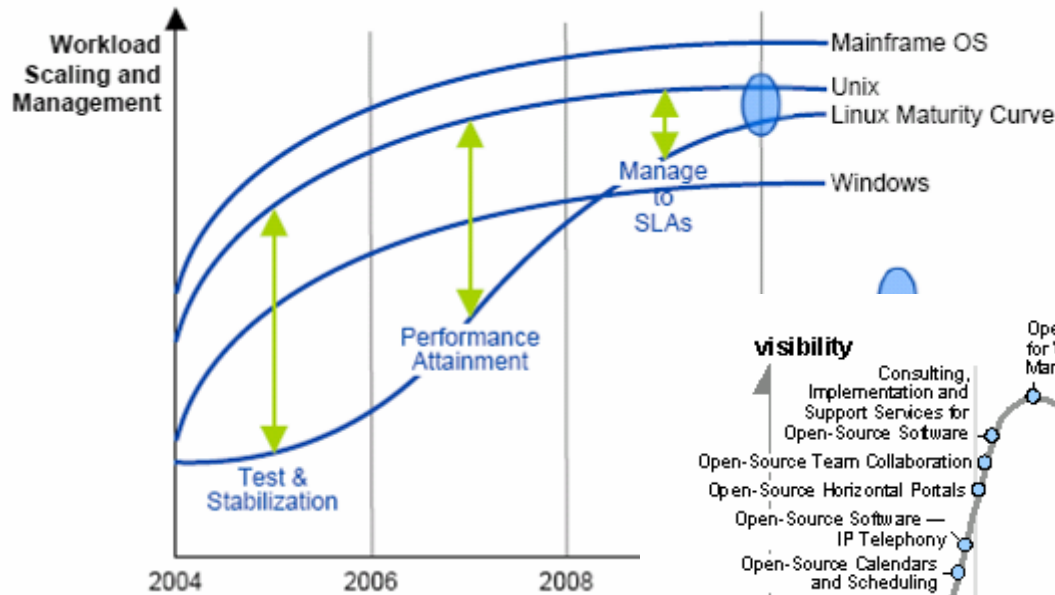
Shine a light into
“Information
Shadows”



SASOL
reaching new frontiers



Open source becomes “Good Enough”



2010
Linux “good enough” to replace UNIX

2010
Linux “good enough” to replace Windows



Plateau will be reached in:

- less than 2 years
- ◐ 2 to 5 years
- 5 to 10 years
- ▲ more than 10 years
- ⊗ obsolete before plateau

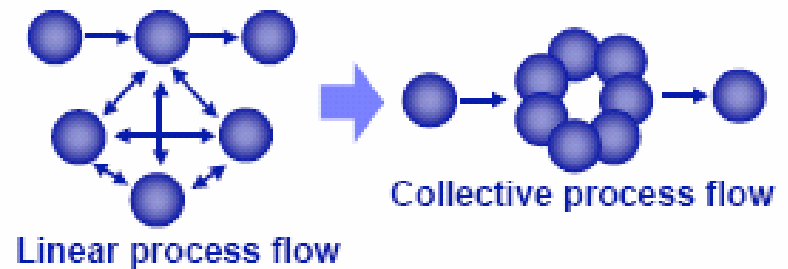
Collaboration – The new way of talking

“None of us is as smart as all of us”

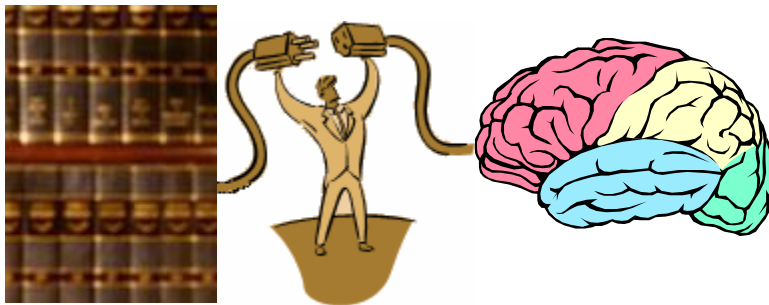
Blogging



Collective Process Flow



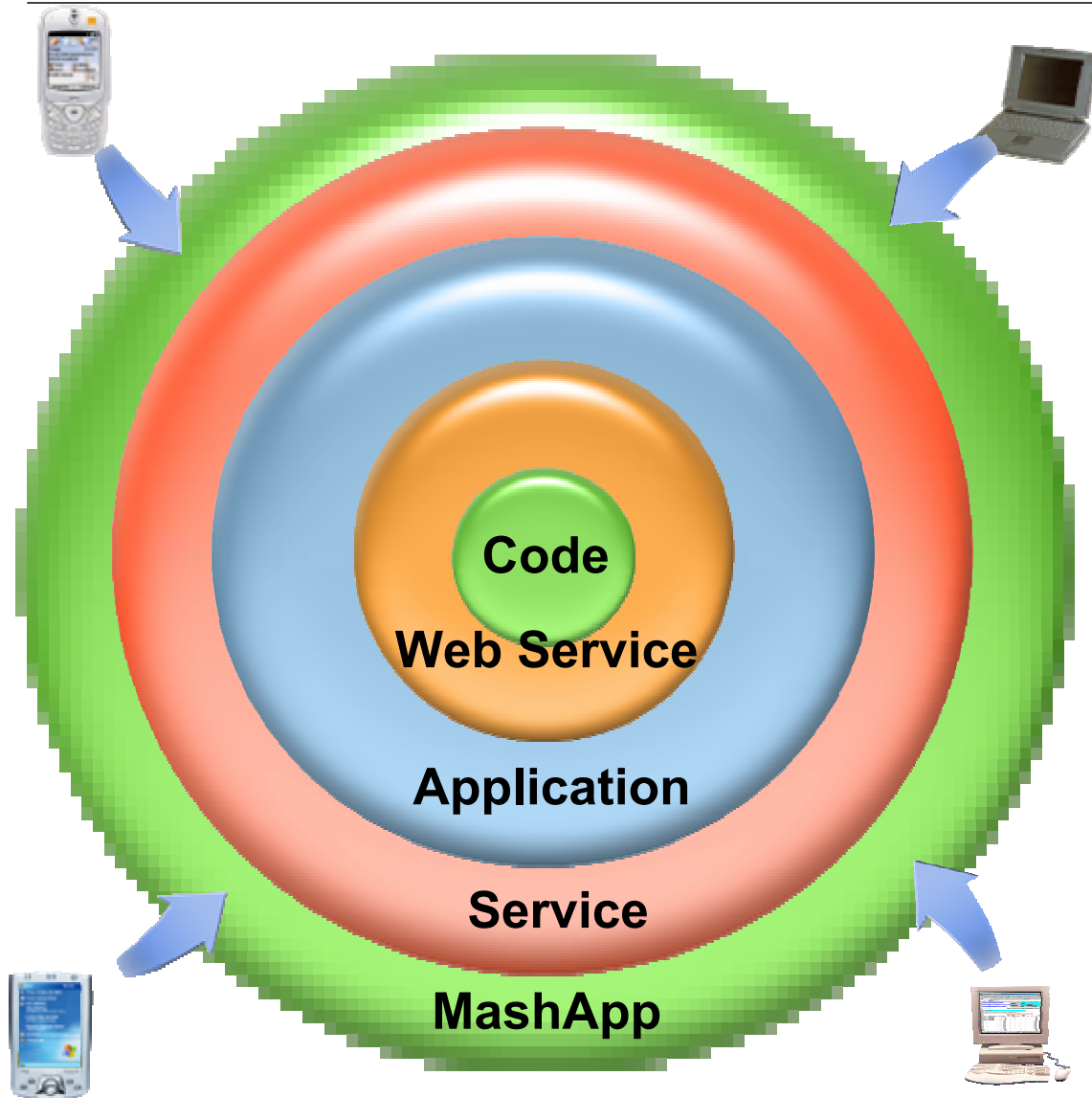
Wikipedia



Really Simple Syndication



The business web (Web 2.0)



salesforce.com[®]
Success On Demand.[™]

Microsoft Office
Live Basics
Beta

Google[™]

YAHOO![®]

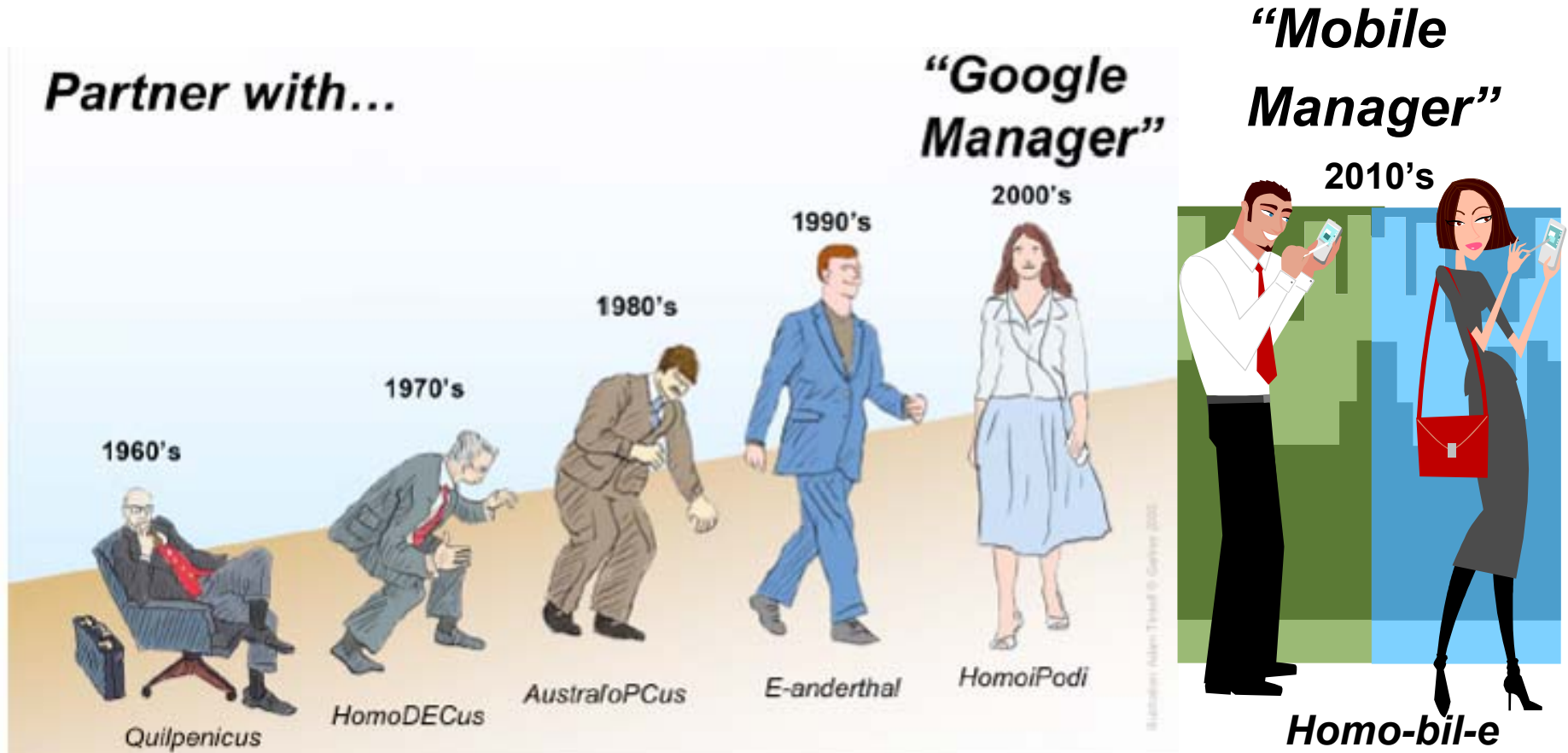
ebay[®]

zopa[™]

FitMe

priceline.com[®]

The user of the future



The big 5 trends...

- Virtualized systems will form the new hardware
- Privacy will become an even bigger issue
- Software-as-a-Service is becoming a reality
- Mobile devices and people will be everywhere
- Business users' knowledge of IT is growing



SASOL
reaching new frontiers

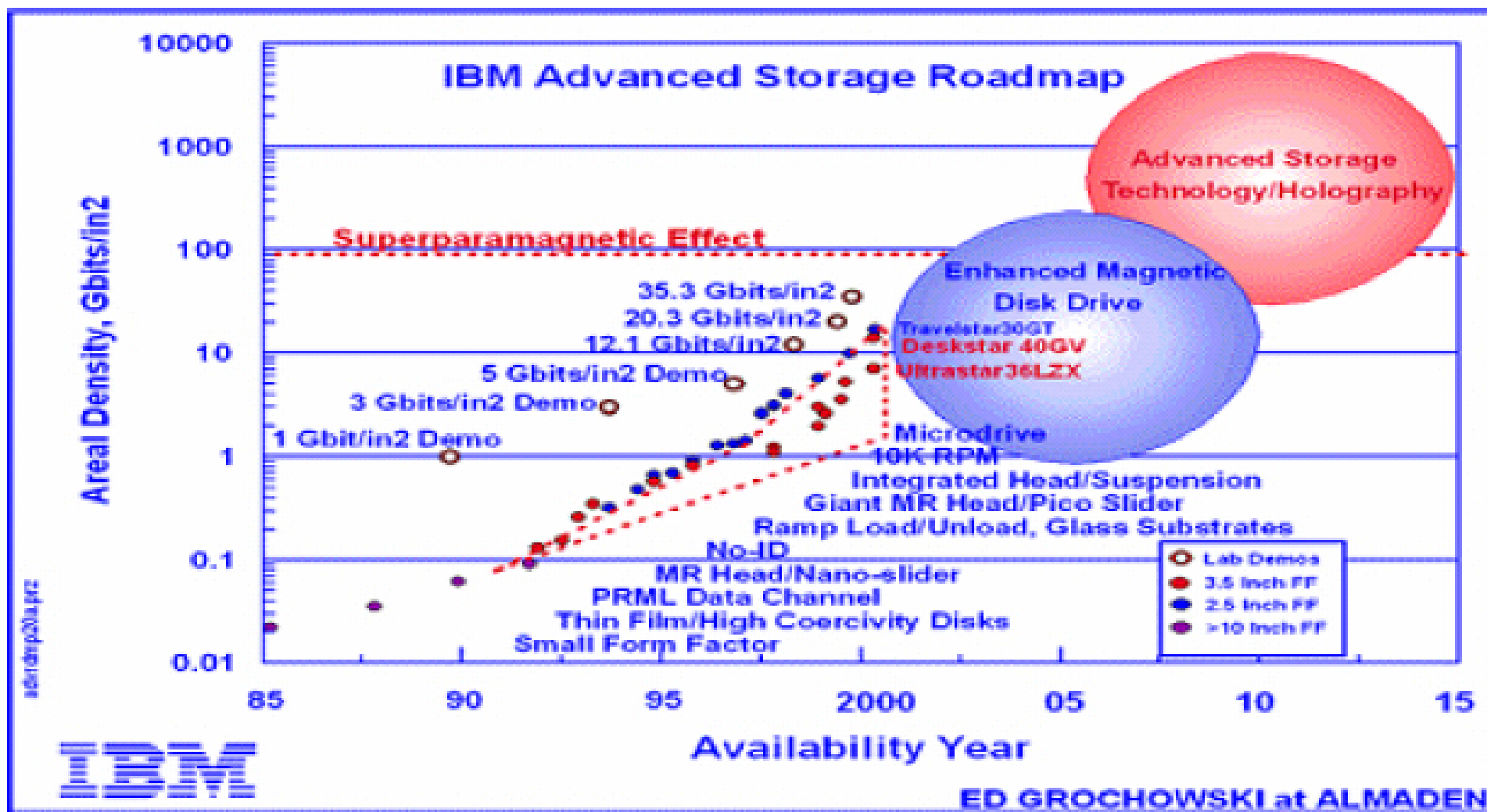


Longer Term Trends

- All data is stored forever
- Manufacturing at home
- From desktop to no-top
- Software replace hardware
- “Open Source” rules the world
- Hardware becomes free

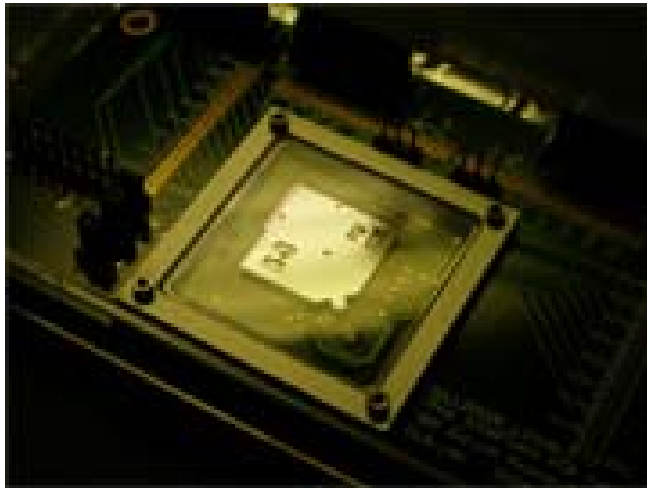


All data is stored forever



All data is stored forever – IBM Millipede

8 Terrabits per square inch



Today: 500 GB per square inch ~ Prototype



All data is stored forever – Holographic Storage

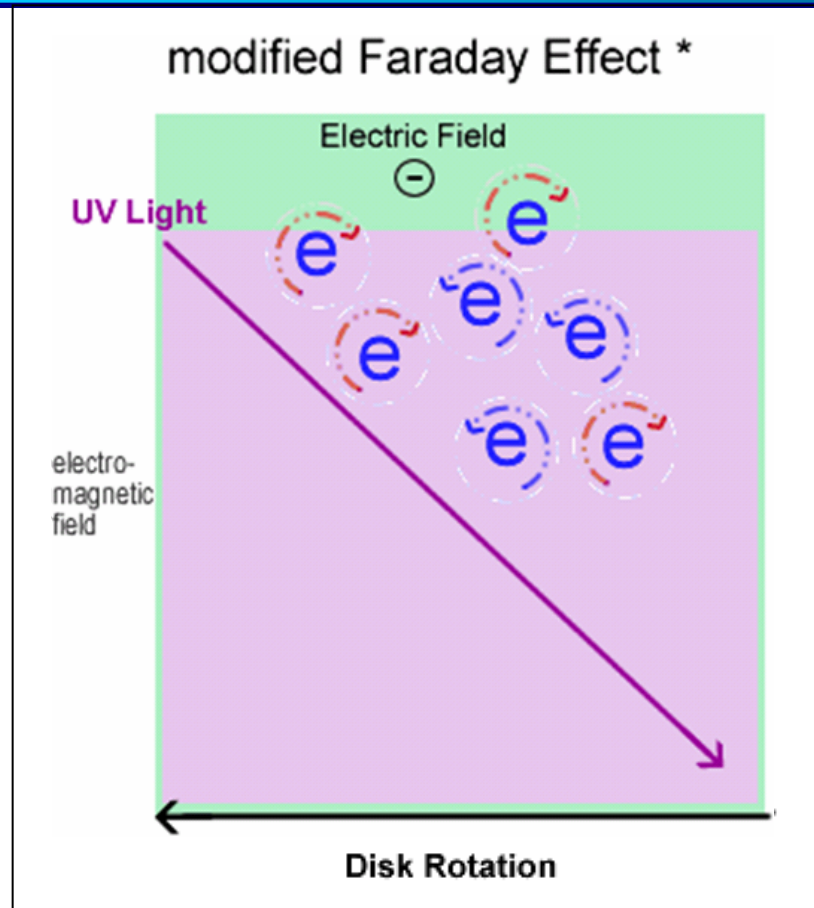
40 Petabits per square inch



Today: 300GB disc ~ \$120 + reader ~ \$15 000

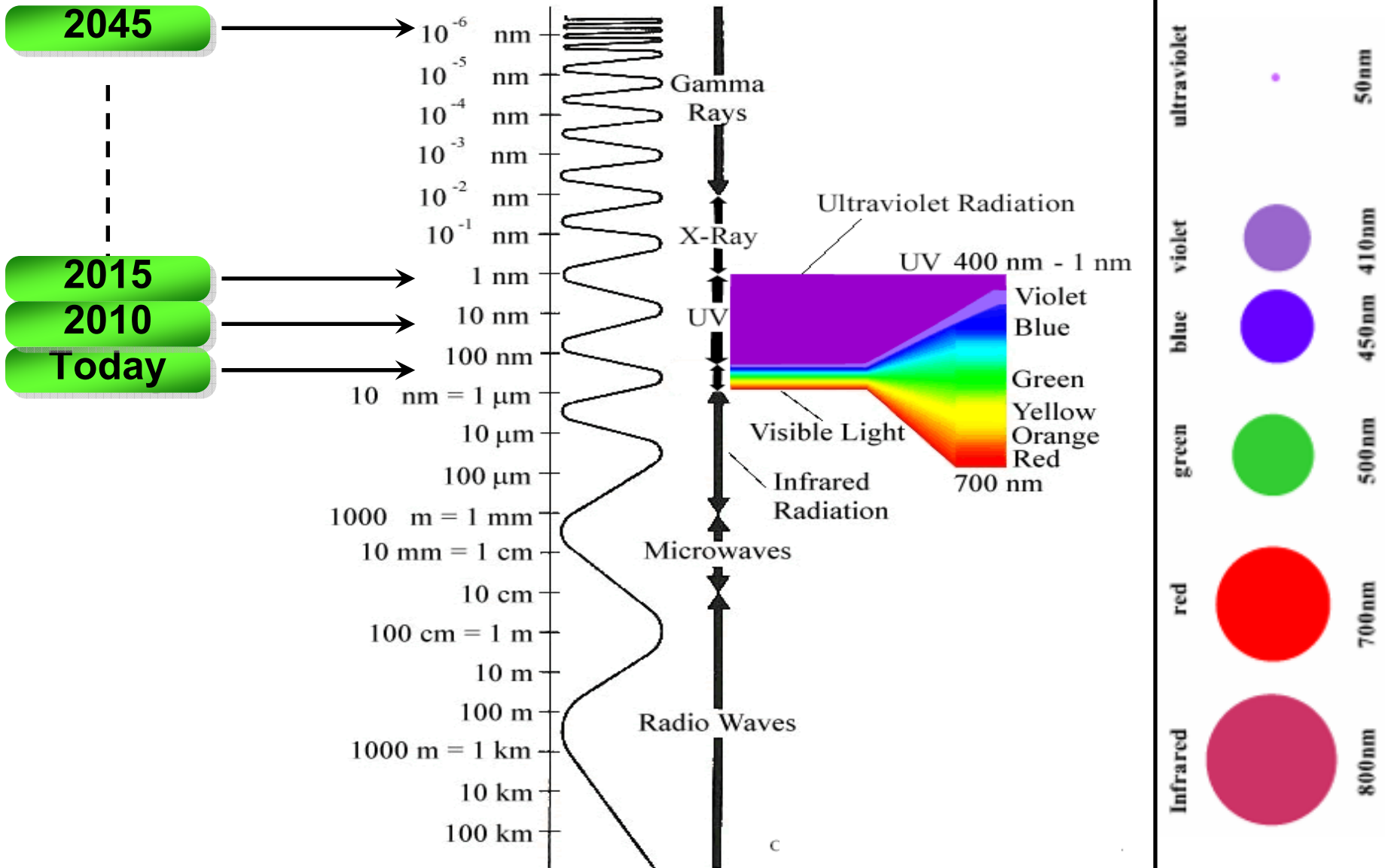
All data is stored forever - Spintronics

200-500 Petabits per square inch

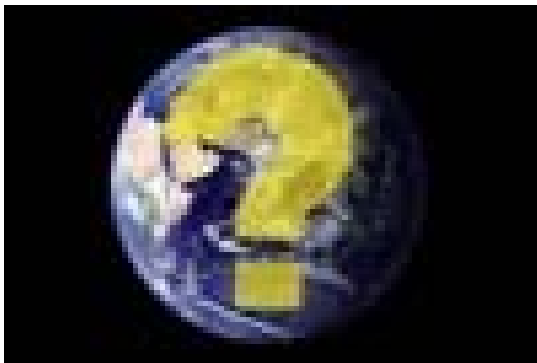
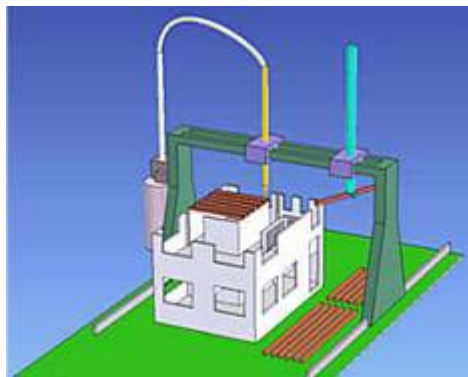
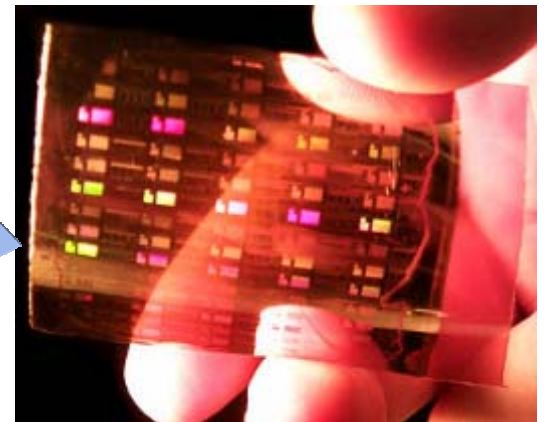
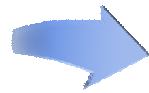


Today: 1.2 Petabyte 3.5" disk ~ Prototype (\$700 000)

All data is stored forever



Manufacturing @ Home



Manufacturing @ Home

OPTOMECH
Additive Manufacturing Systems — from Nano to MACRO™



dimension



3
SYSTEMS



- Rapid Prototyping
- Large Scale Manufacturing
- Duplication of Products

sasol
reaching new frontiers



From Desktop to No-Top



- Smart environments
- Real-Time interaction
- Thought controlled



Control
&
Feedback



SASOL
reaching new frontiers



References & Sources

- Gartner (www.gartner.com)
- Forrester (www.forrester.com)
- Internet Systems Consortium (www.isc.org)
- World Wide Web consortium (www.w3.org)
- Wireless World Forum (www.w2forum.com)
- ZDNet (www.zdnet.com)
- Tech Republic (www.techrepublic.com)
- Matts Computer Trends (www.mattscomputertrends.com)
- Microsoft (www.microsoft.com)
- IBM (www.ibm.com)
- Dr. Lawrence G. Roberts (<http://www.packet.cc>)
- Vodacom (www.vodacom.co.za)
- MTN (www.mtn.co.za)
- CellC (www.cellc.co.za)
- Salesforce.com (www.salesforce.com)
- HowStuff Works (www.howstuffworks.com)
- Colossal Storage (<http://colossalstorage.net>)
- Blu-Ray (www.blu-ray.com)
- Wikipedia (<http://en.wikipedia.org>)
- CNN (www.cnn.com)
- Neurosky (www.neurosky.com)
- BBCI (www.tinyurl.com/pnlb8)

