How does the CIO deliver?

With good vibrations…

Pini Cohen

STKI "IT Knowledge Integrators"

pini@stki.info

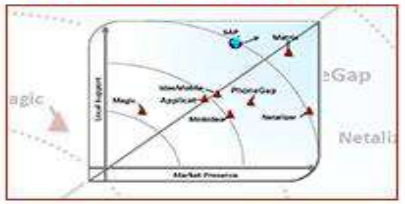
What are you getting

IT Tiering

2

» Read More

Product Positioning



3

» Read More

Trends

4

» Read More

Round Tables

Round tables constitute a discussion between about ten – fifteenth organizational users that deal with similar issues. The target of the meeting is to enable an open discussion and an exchange of ideas in the specific round table topic and to also establish best practices, lessons and tips from this meeting to share with other user organizations who are STKI clients.

» Read More

5

Newsletter

STKI Newsletter is a quarterly update on new products and services in the market. Each quarter STKI provides an informative update on these new offerings. The newsletter includes a short overview on new solutions, divided into categories, and combines a relevant analyst's insight and analysis. This service enables our customers to stay informed and up-to-date with the ever increasing market changes and new offerings.

» Read More

6

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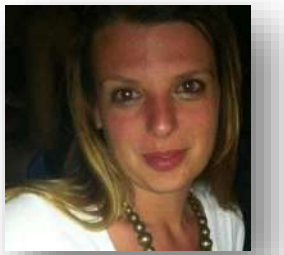
Thanks to STKI team!



STKI Summit 2014 Frame tale:

"יש!"

I was chosen for the job I wanted–CIO of the organization!

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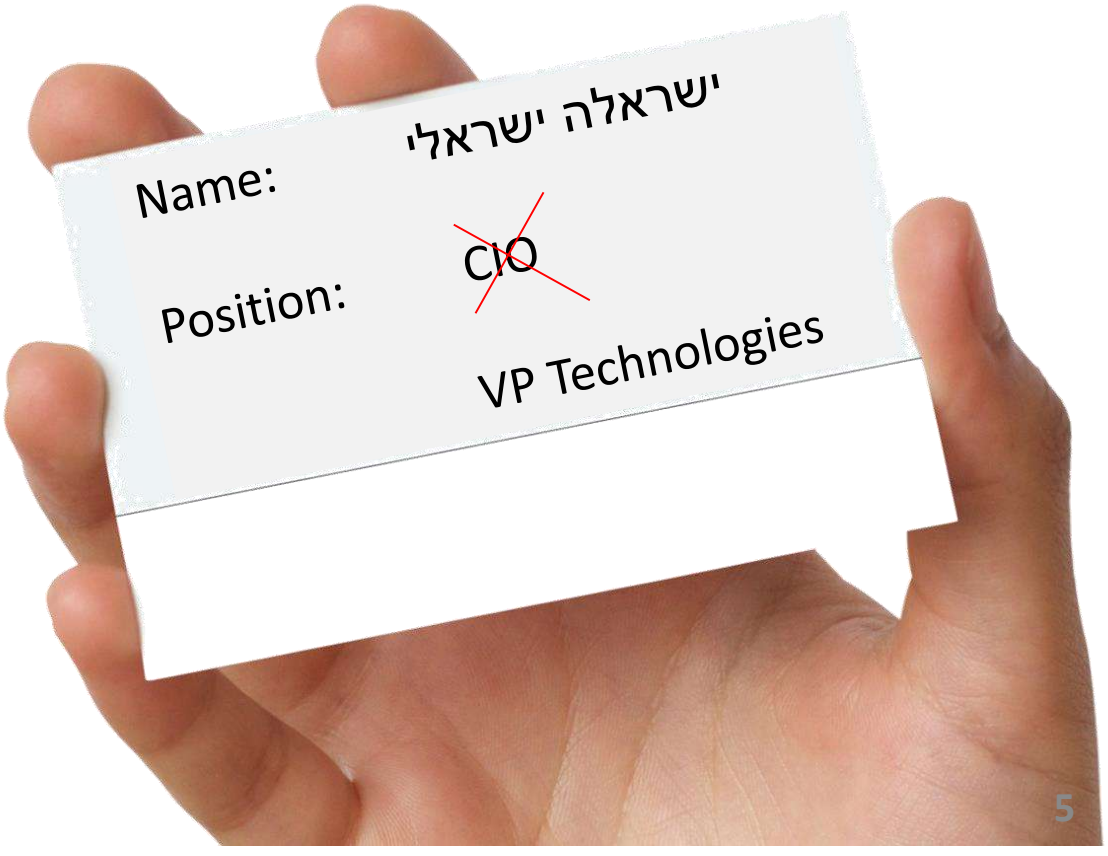
STKI Summit 2014 Frame tale:



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STKI Summit 2014 Frame tale:

The CEO has asked to:

- "Do better with the current business processes"
- "Enable new business processes"
- "Act like a factory"

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STKI Summit 2014 Frame tale:

Do better with current business processes means better:
Availability, Business alignment (LOB will not have to "wait" for IT),
Regulation compliance, Security.
All with lower budget!

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STKI Summit 2014 Frame tale:

What does "Support new business processes" mean?

Why does IT need to adapt?

DX.com

Source: 2006 http://cacm.acm.org/magazines/2006/10/5805-why-spoofing-is-serious-internet-fraud/abstract

2006 E-Banking Site

Amozonification

Comparison engines

A-B testing

Social media integration

Alerts

Web Analytics

Recommendation engines

Much more

Likes

Wish Lists

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New business needs require:

- Different Functionality
  - Comparison engines, Alerts, Web Analytics, A-B testing, Recommendation engines, Social media integration, Wish Lists, Blogs, Likes, Personalization (geographically, etc.), API Economy (working with many partners) etc (more at Einat and Galit's presentation.
- **Different Mentality**
  - Constantly updated to application, Unplanned Scale, Short (and long) projects, Huge Data needs, Huge Compute needs, Mobile first, API Economy etc.
- This cannot be achieved with "More of the Same" IT technologies and processes!

Insanity is doing the same thing, over and over again, but expecting different results.

-Albert Einstein

These new systems are called: "Systems of Engagement"

Source: http://www.agencyport.com/blog/?attachment_id=3713

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IT is divided into two distinct "worlds"

Today's Data Center

Systems of Records

ORACLE Applications · SAP · Microsoft Dynamics · IBM Mainframe

System of Records (transactions)

80-85% of Budget
20-30% of CIO time

Productivity Optimization
Processes
Long Life Cycles

Long development and deployment cycles

Reduce Operating Expenses

operational advantage

competitive advantage

Software-Defined Data Center

Systems of Engagement

node.JS · RAILS · spring · python

System of Engagement

15-20% of Budget
70-80% of CIO time

Touch people
In-moment decisions
Personalized & in-context
Social and analytics driven

short & rapid releases

Invest in new systems

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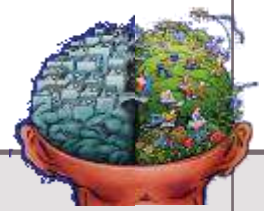
Systems of Records VS Systems of Engagement

	Systems of records	Systems of engagement
Strategic Attention	1%	99%
MGT Time	20%	80%
Budget	80-90%	10-20%
Lifecycle	20-30 years	3-5 years
Development method	Water Fall	Agile
QA	Sourcing	Crowdsourcing
Temp	Slow to change	Quick to adapt

Systems of Records VS Systems of Engagement

	Systems of records	Systems of engagement
SW vendors	Traditional	Open Source
Change management	ITIL	continuous deployment
Data layer	Relational DBMS	No SQL (transactional) and Hadoop (analytics)
Programming languages (server side)	Cobol .Net Java,	Python, PHP, Java
Servers	Physical and Virtualized	Physical
Location	On Premise (mainly)	On Public cloud (mainly)
GUI is first build for	Desktop	Mobile



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Systems of Records VS Systems of Engagement

	Systems of records 	Systems of engagement
Storage basics	Raid	No Raid (software deals with node failure)
Server architecture	Virtualization	No virtualization
		
		

In this presentation

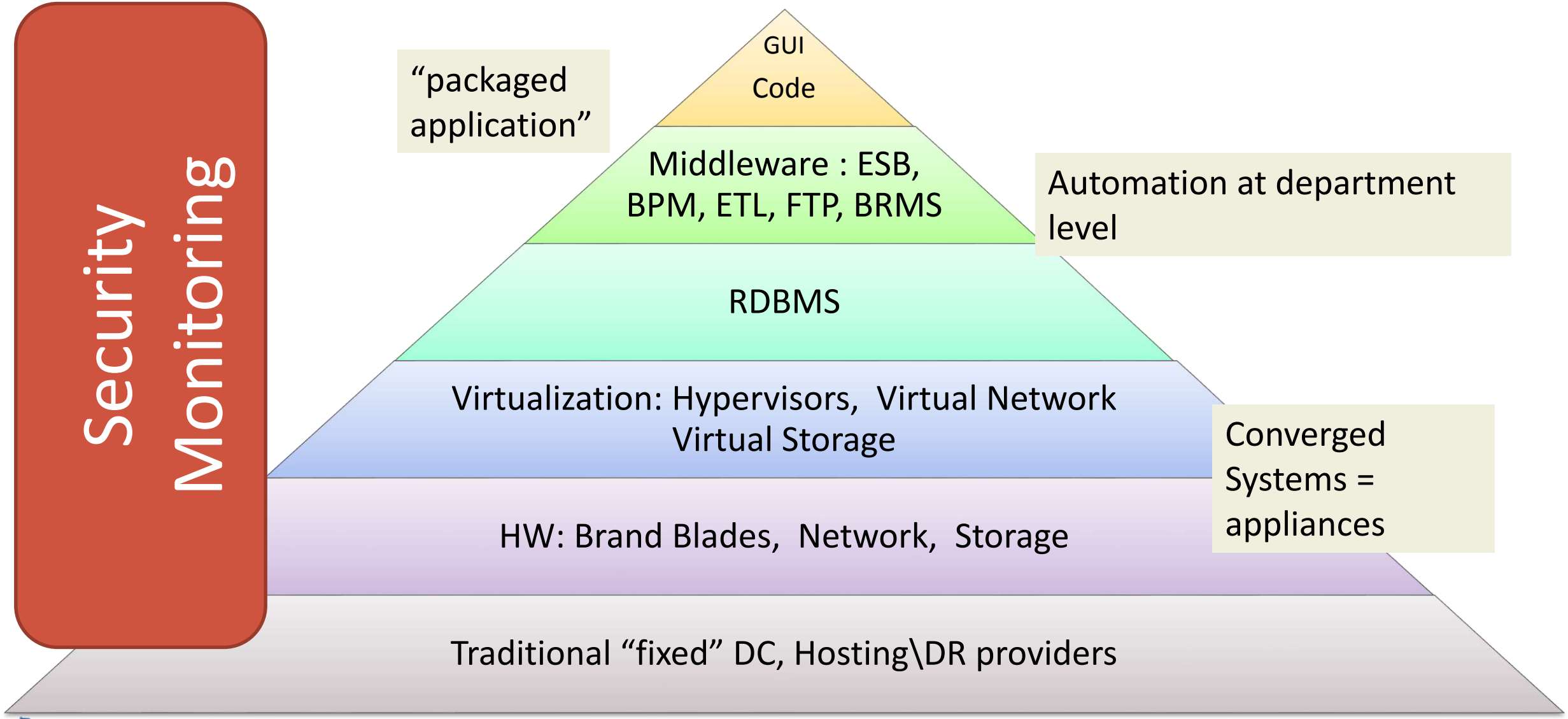
Systems of records are utilizing Traditional technologies

Systems of engagement are utilizing New technologies

But in reality new technologies are also used for systems of records

System of records technology stack

Security Monitoring



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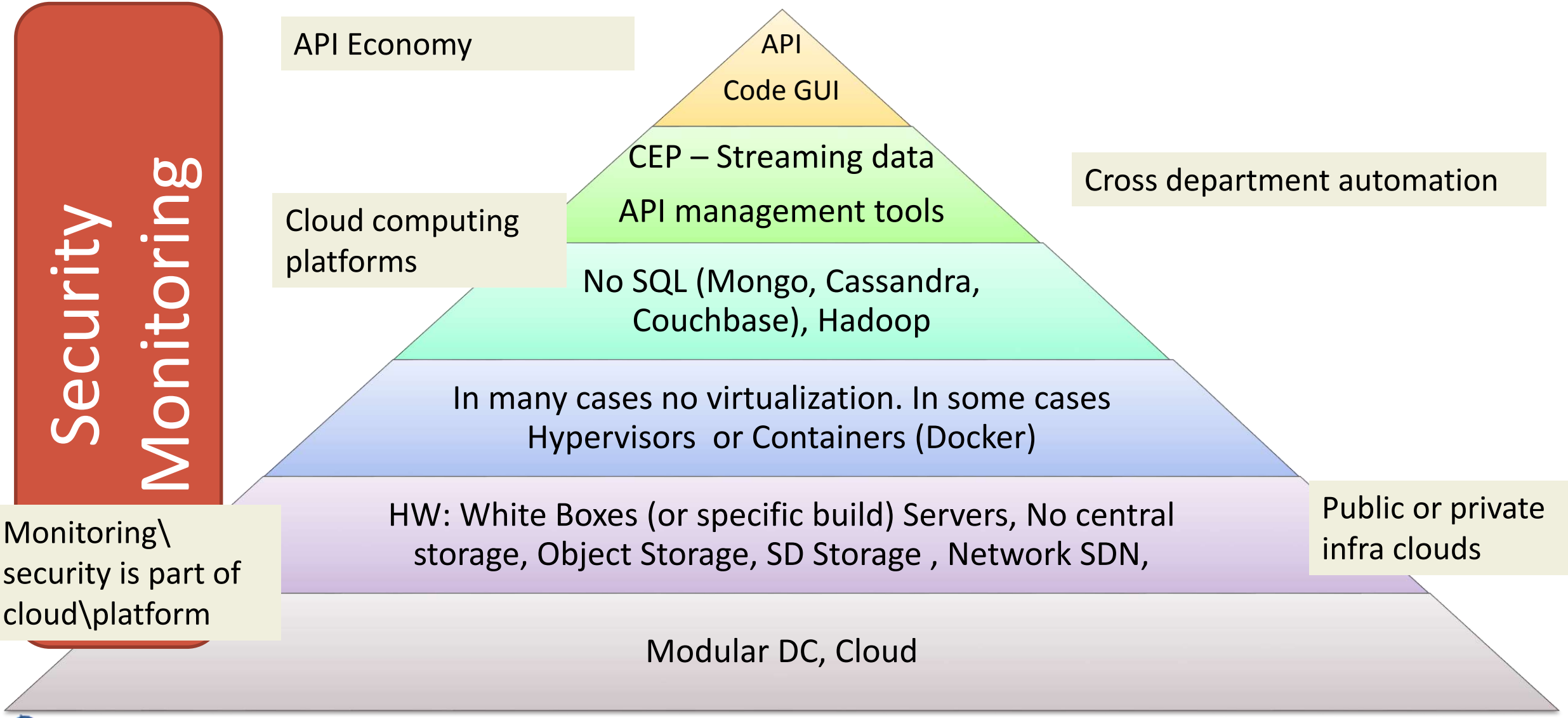
System of engagement technology stack

Security Monitoring

Monitoring\ security is part of cloud\platform

API Economy

Cloud computing platforms



Cross department automation

Public or private infra clouds

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STKI Summit 2014 Frame tale:

What does "Like a factory" mean?

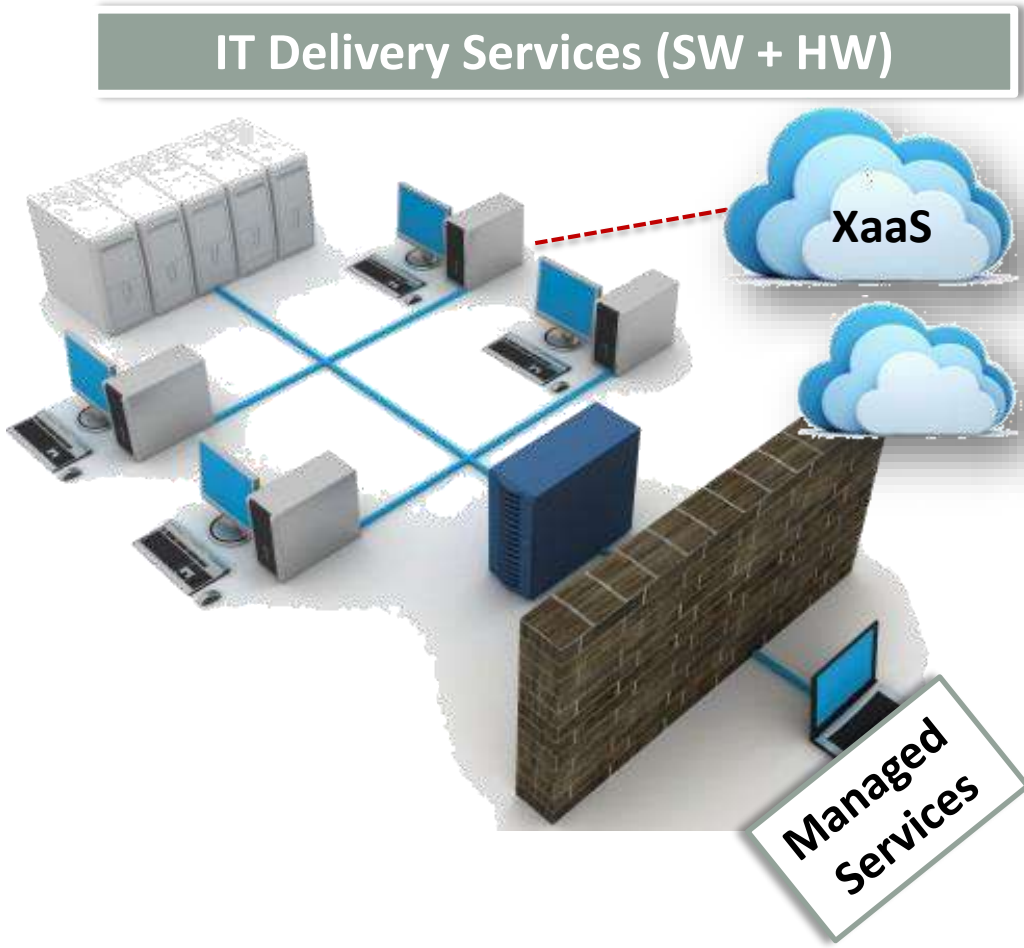
Who is running this?

The IT Factory = “IT Delivery Department”

Source: http://www.frenb.com/eng/about.asp

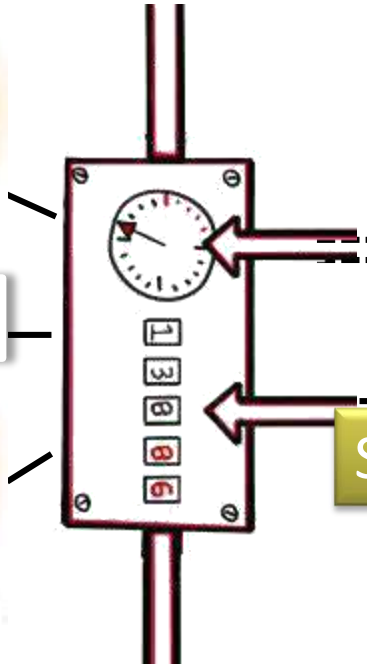
Source: http://www.robotassemblysystems.com/

IT Delivery as a Factory!



IT Delivery as a Factory!

Line of Businesses



IT Delivery Services (SW + HW)

Elastic

On-Demand

Usage Metered

Self-Service Access

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IT is divided into two distinct "worlds"

Security

2D Printing

Voip, Video

IDM

System of Records (transactions)

Today's Data Center

Systems of Records

ORACLE Applications SAP Microsoft Dynamics IBM Mainframe

System of Engagement

Software-Defined Data Center

Systems of Engagement

node.JS RAILS spring python

Cyber

UC&C

IDM

SDN

3D Printing

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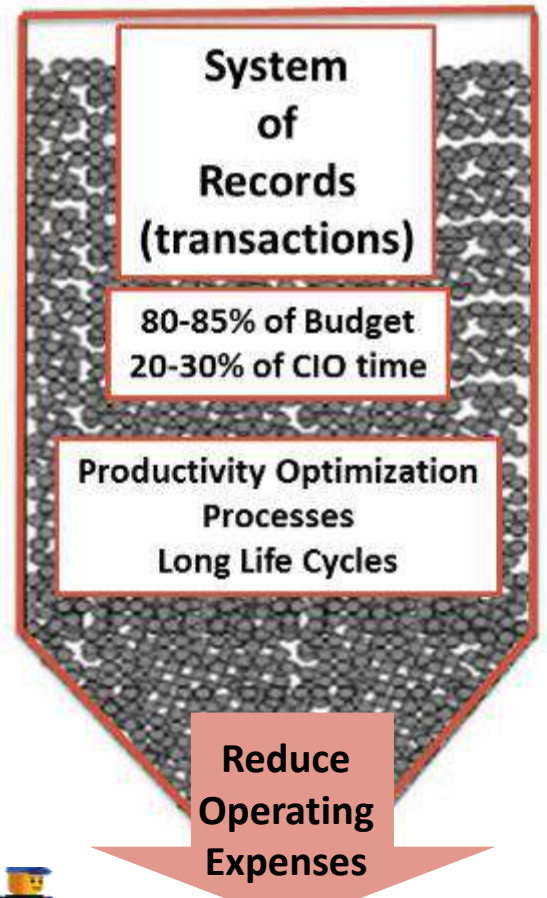
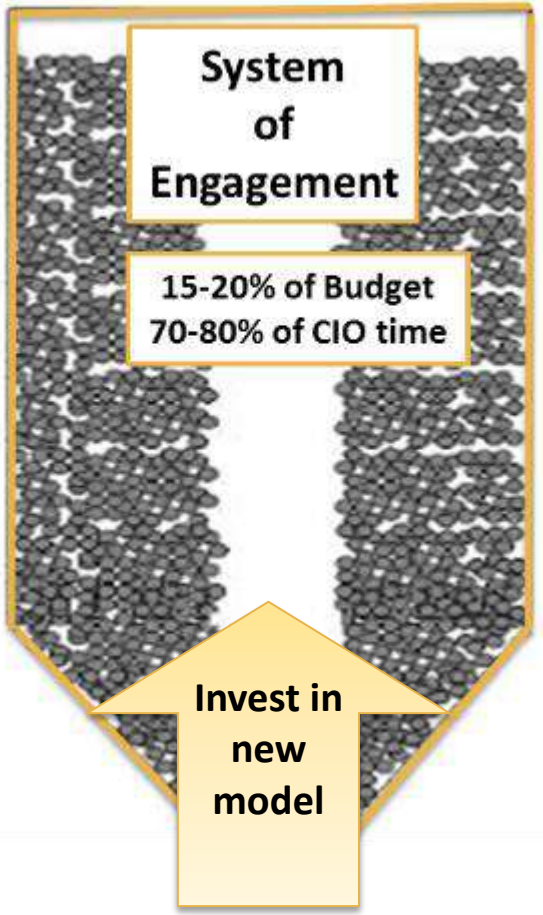
IT Delivery Challenges



"Records" and "Engagement" share the same *IT Delivery* problem domains

But might address these challenges differently



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STKI Summit 2014 Frame tale:

This is a "marathon" and not a sprint
Let's first meet with the members of the team

STKI Summit 2014 Frame tale: The DC manager

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Modular DC

Sources: wiki: http://www.myfreenhosting.com/green-data-center.php

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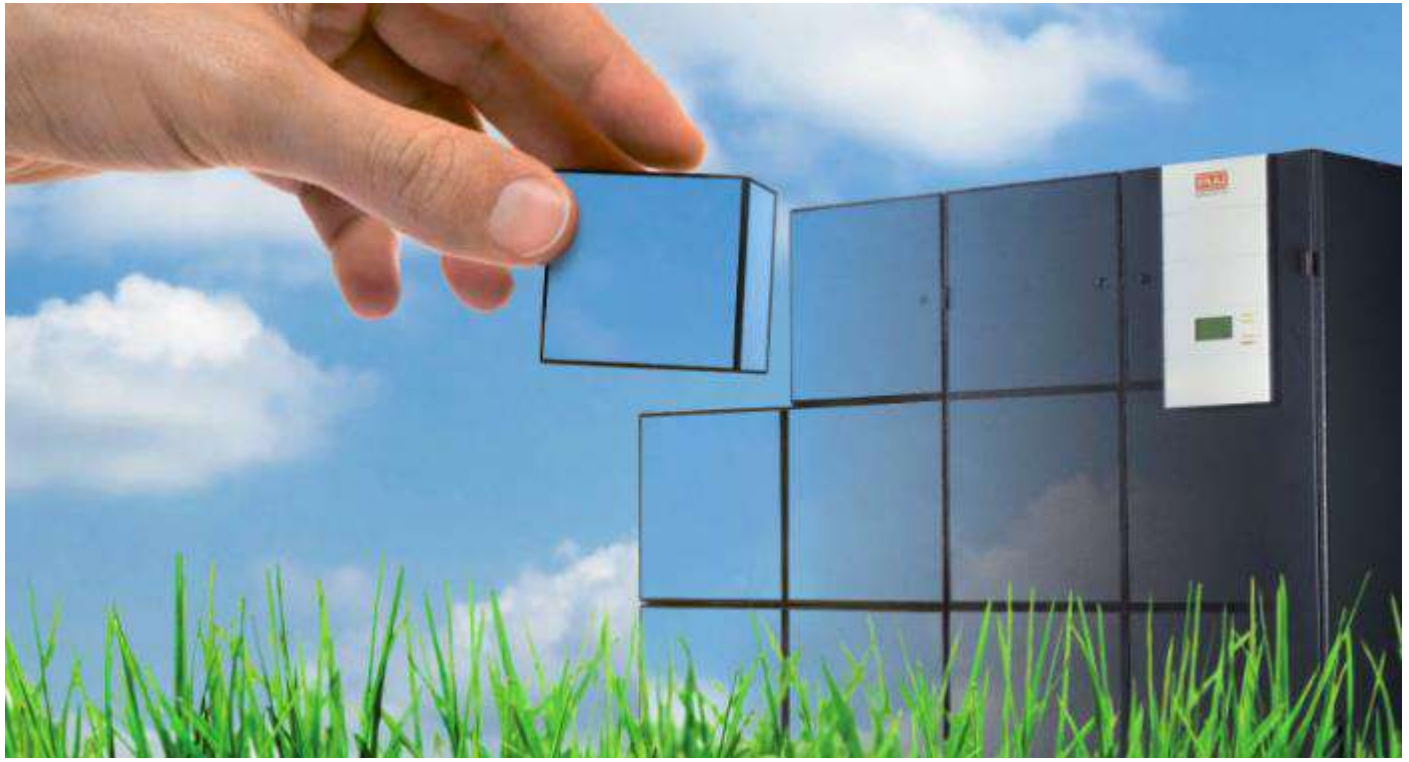
Modular DC is

- On Wheels
- Containers: iso containers vs. none-iso size containers
- “Self contained” containers vs. containers that rely on outside cooling, power (generators), etc.
- Modules that are assembled together



Modular DC pros and cons

Pros:

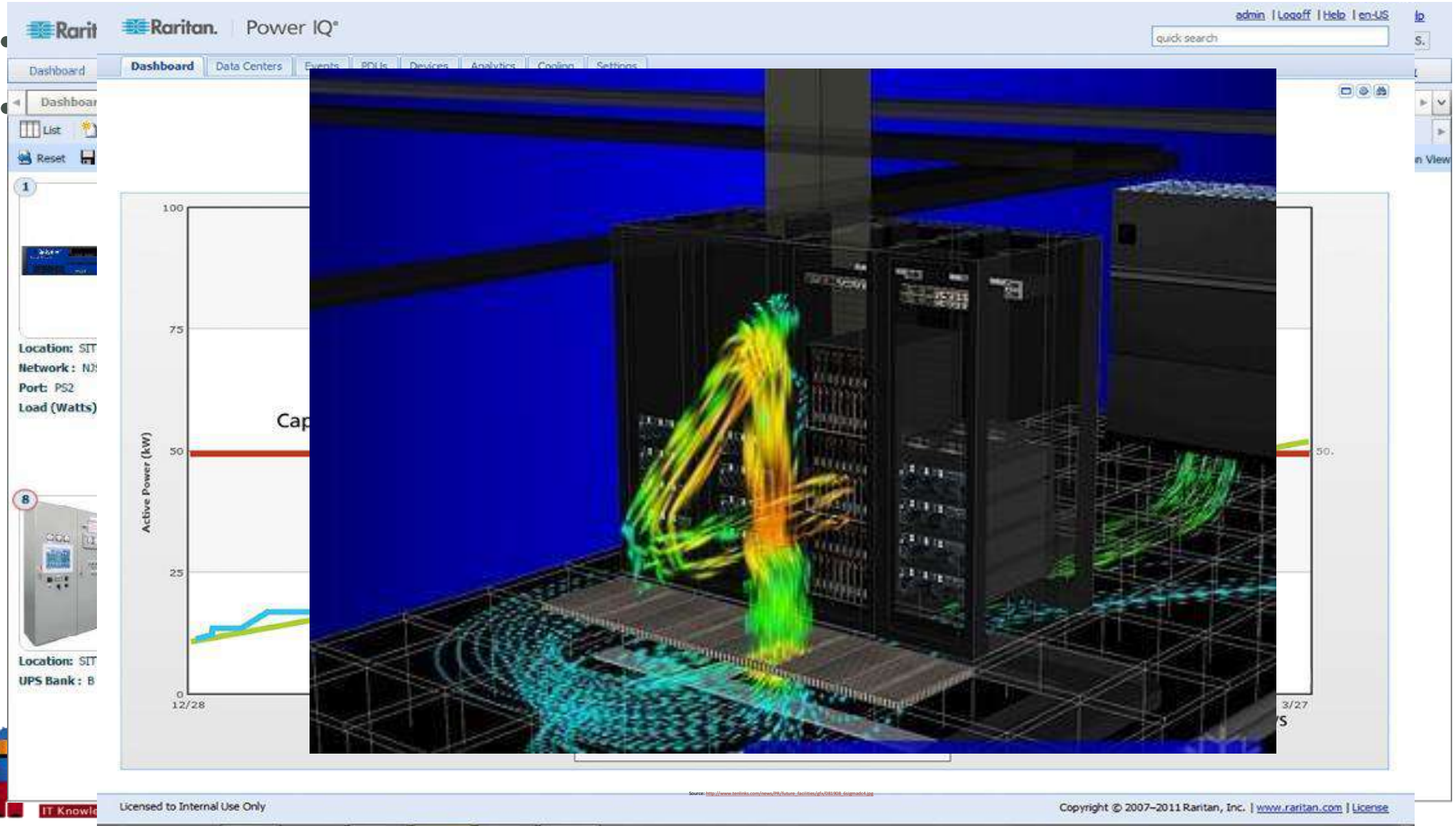
- Faster delivery, easy to install, pre-built
- Grow as you grow– do not need to invest for future use
- Growth and maintenance are predictable
- Repeatable design leads to lower PUE = lower operations cost
- **Should be cheaper because of scale of production**

Cons:

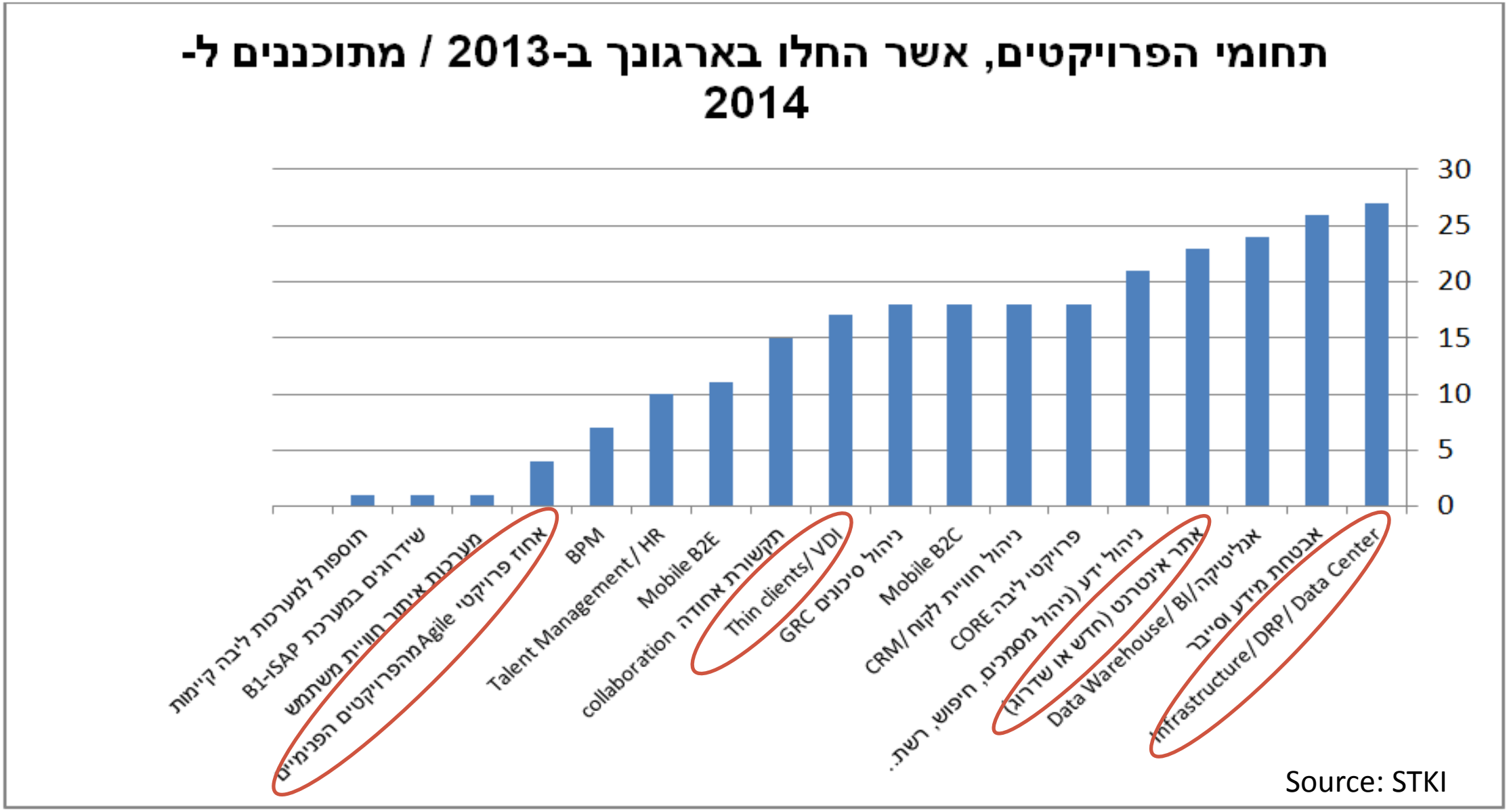
- One size does not fit all
  - size of container \ size of underground elevator
  - regulated components
  - size of building – 50 cm is left unused
  - Special need that is not standard
- Vendor lock-in in procurement and maintenance
- How long will it take to bring container to Israel ?!
- **Can be more expensive because "they can"**

Modular DC is a viable option. Its final market position is still evolving.

DCIM Data Center Infrastructure Management



Who is using the DC technologies - End Users



Who else is using the DC technologies

- Boom of new and expanding Hosting, DRP, Cloud providers:
  - MED1, BezeqINT, CCC, Bynet, Malam, HP, IBM, Viola, Adgar, etc,.
- On top of the basic Hosting\DRP services we see more and more Cloud services:
  - Backup as a Service
  - DR as a Service (example WE!Cloud)
  - Email as a service (provided by local companies)

Source: http://www.ssae-16.com/finding-ssae-16-data-center/

bottom LINE click here

Israeli players believe that local regulations will help local cloud providers ("Canada" style)

STKI Summit 2014 Frame tale: The Storage manager

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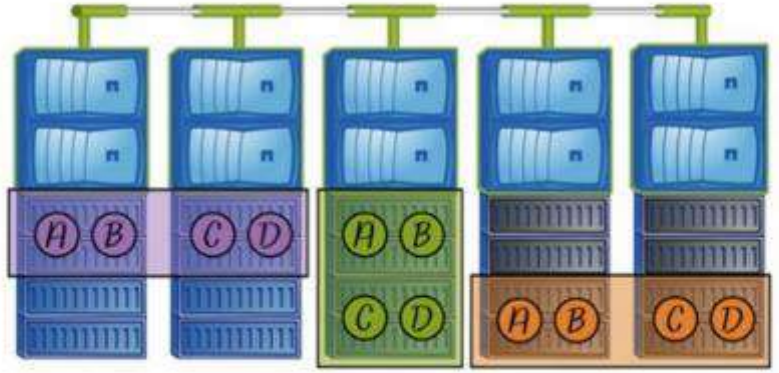
Major storage trends include:

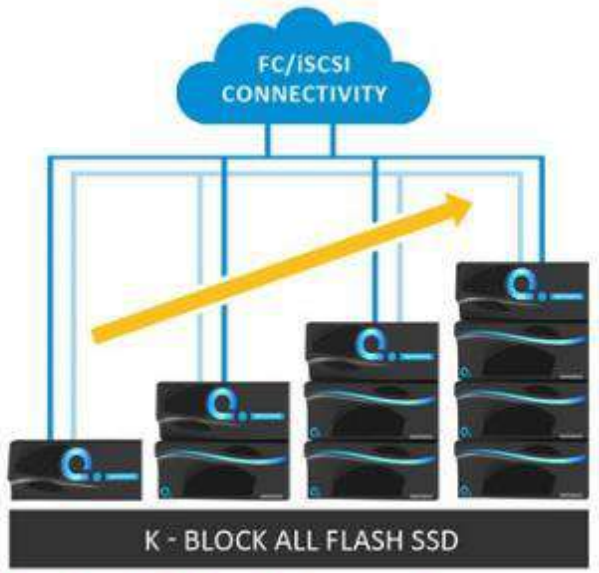
- Continuous growth in volumes
- Price drop per TB
- From Highend to Midrange to JBODS\Servers (SDS)
- From SAN to NAS (unified) to Object
- Zero downtime is required

Scale out storage

NetApp



kaminario.



Scale Out - Linear Increase
of capacity, throughput, IOPS and connectivity

bottom LINE click here

Will scale out storage lead the way to Software Defined Storage?

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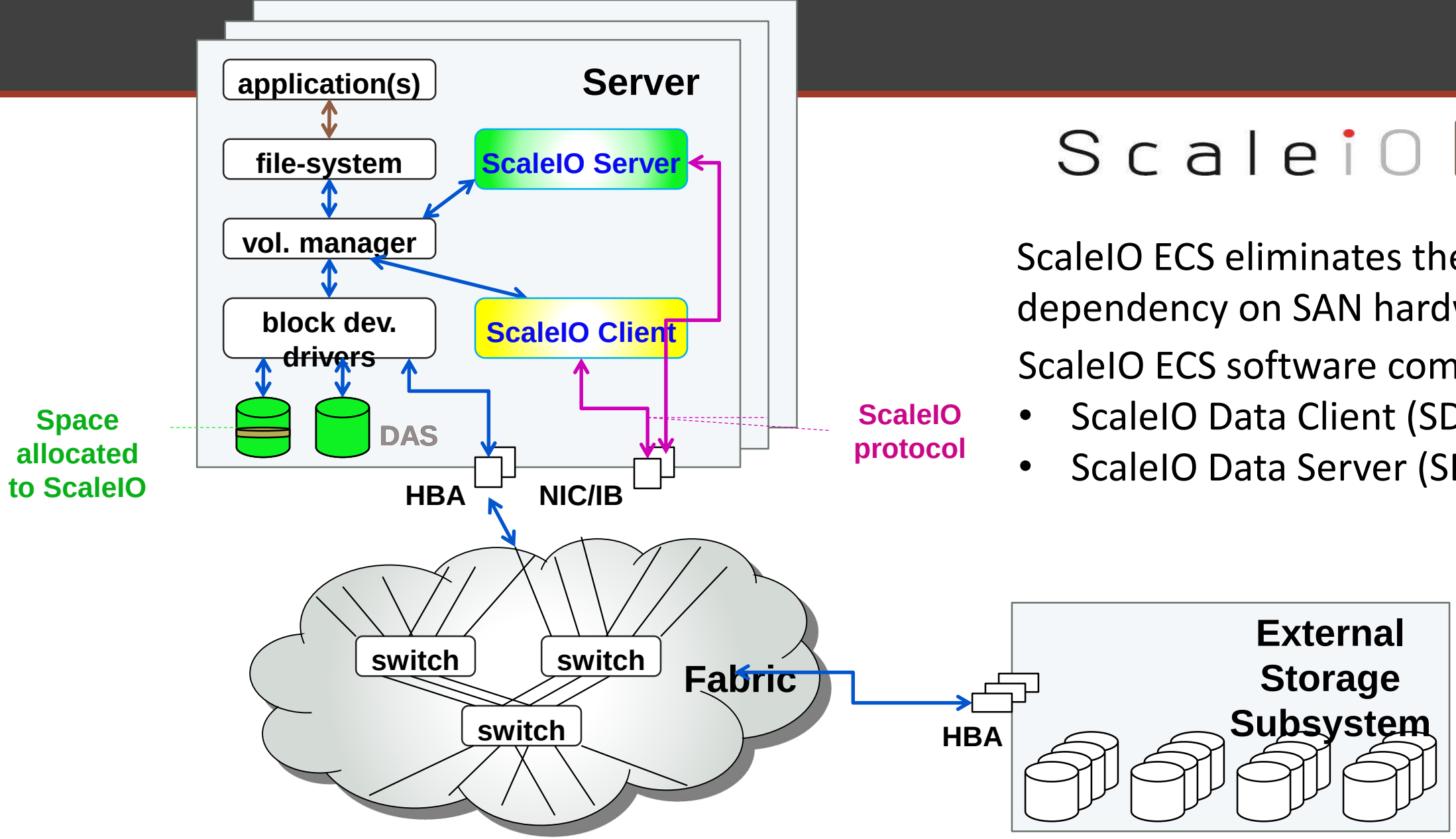
ScaleIO ECS



ScaleIO ECS eliminates the dependency on SAN hardware

ScaleIO ECS software components:

- ScaleIO Data Client (SDC)
- ScaleIO Data Server (SDS)

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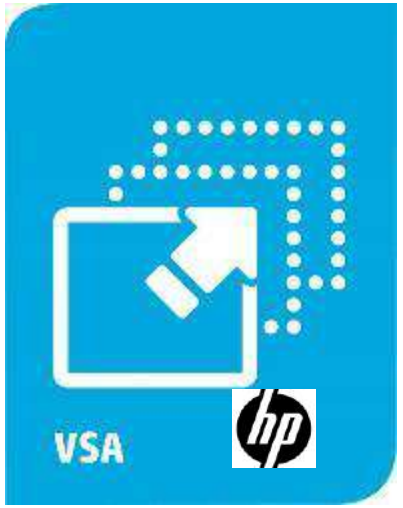
First steps in SDS installed on standard servers!



ScaleIO

Software Defined X has tactical but also strategic implications (discussed later)

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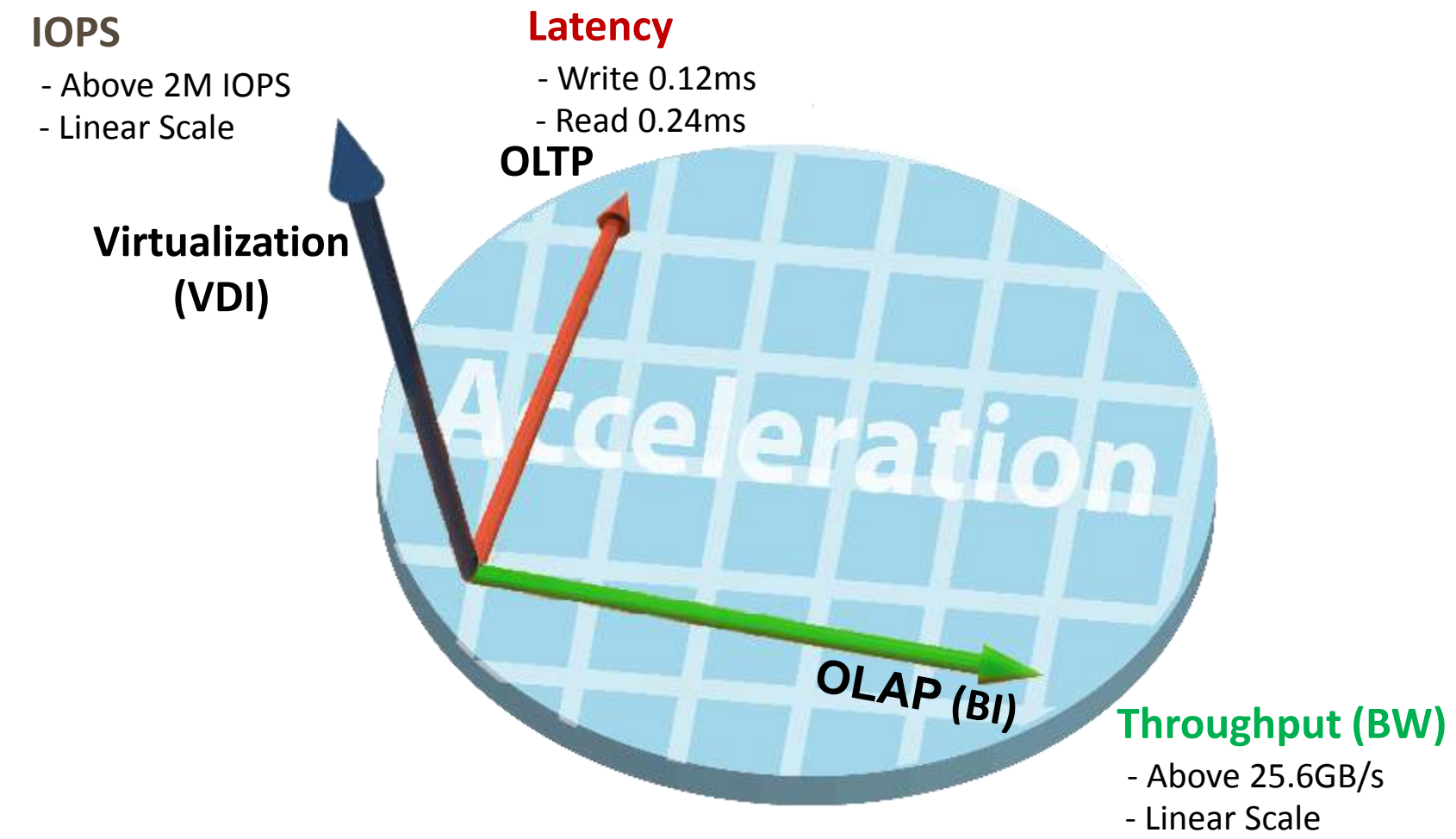
Storage performance dimensions – all flash perspective

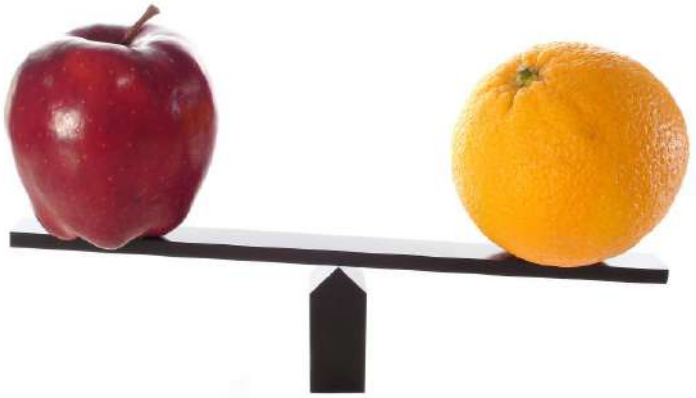
Flash array is more affordable with

- In-Line De-Duplication – Best for Virtualization and VDI
- In-Line Compression – Best for OLTP and OLAP



Advanced storage solutions (VPLEX, SVC, etc.)

- Users already see value from these solutions:
  - Stretched cluster over 2 locations (without geo-cluster)
  - Same site higher availability
  - No downtime for migration
  - Advanced functionality based on low cost storage
- However, users should look at
  - Change in the storage processes
  - Problem resolution might take more time
  - These solutions rely heavily on storage network capabilities



Source: http://mythom.blogspot.co.il/2012/02/reading-threading-comes-from-stephen.html

Advanced storage solutions are not “silver bullet”. “Try and Buy” is preferred tactics in this case.

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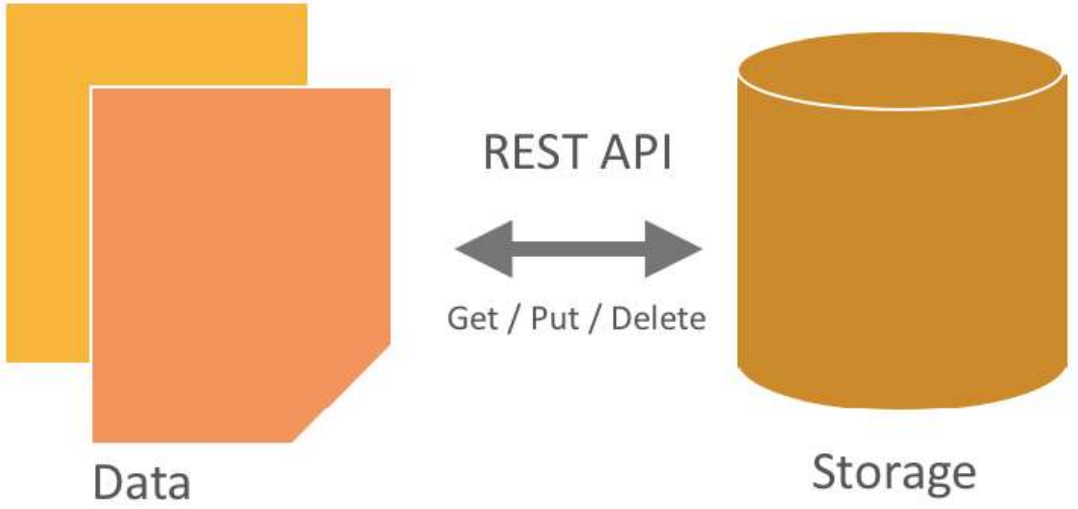
Object Storage

- Stores “object” and not files or blocks. Identify objects by OID (not the “name” of object)
- Only create, read and delete operations are supported. No update so there are no locking conflicts. This also enables easy copy of objects in different nodes\sites for DR.
- Theoretically with no limits (does not rely on file system\volume that is limited by total size, number of files, name of files)
- Custom metadata (can include thumbnail, audio\video preview, etc.)
- Enables Web protocols (Rest\Soap). Also enables multi tenancy (“sub administrators”)



PUT http://swift.example.com/v1/account/container/new_object

GET http://swift.example.com/v1/account/container/

Cloud Storage Gateway

RDX type format

- Enable “semi-random” seeks

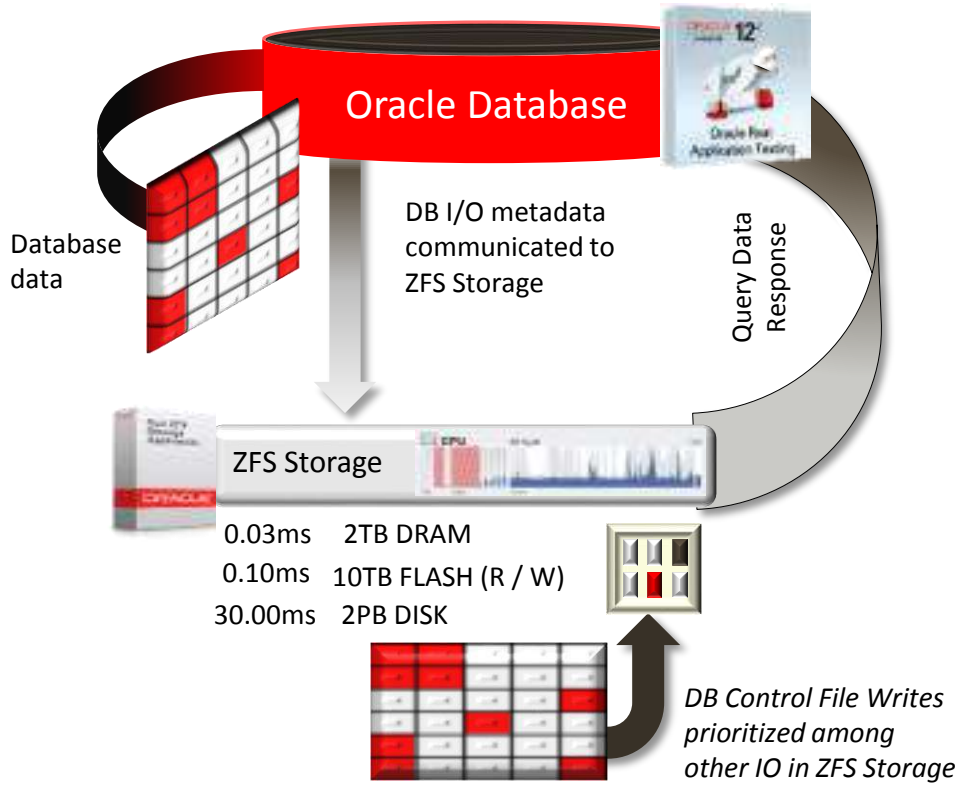
	LTO	RDX
Read / Write Speeds	Faster Sequential read / write, Good for large sequential Backups	Faster random access times, quicker to retrieve individual files from backups
Cost	Cost of Drives substantially higher, Cost of Tapes substantially lower	Cost of Drives substantially lower, Cost of Tapes substantially higher
Max Capacity	1.5TB per tape Native on LTO-5	1TB Cartridge
Backwards / Forwards Compatibility	Reads back 2, writes back 1 (LTO 5 can write to LTO4 Tapes, Read LTO3 and LTO4 Tapes) No forwards compatibility (LTO4 can’t read / write LTO 5 Tapes)	RDX Drives can read all cartridge sizes
Source: http://www.backupworks.com/LTO-Tape-vs-RDX-Disk.aspx		

❖Application Engineered Storage

OISP	ADO	HCC
Dynamic and automatic database-storage tuning	Advanced and dynamic database (data) optimization	Superior database, data warehousing compression

Oracle Intelligent Storage Protocol (OISP)

❖ Cut Database and Storage Tuning Time in Half



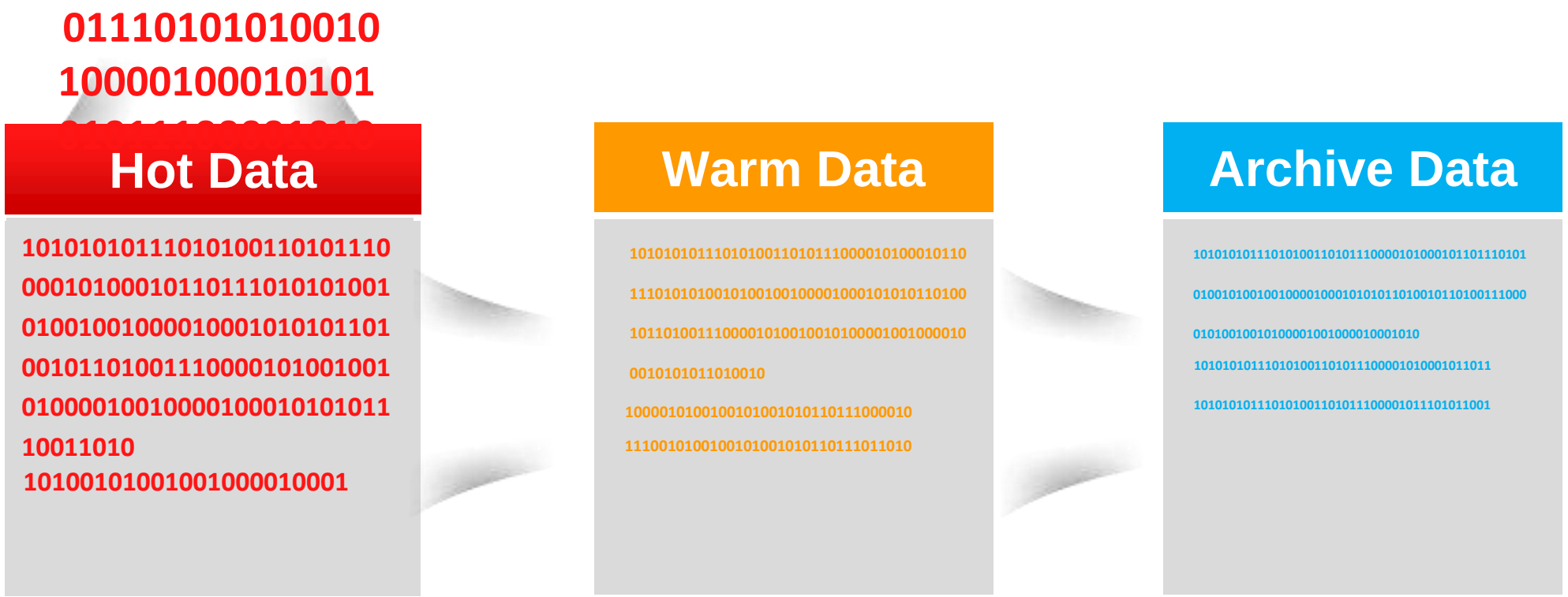
Oracle Intelligent Storage Protocol: Unique language that enables dynamic communication between an Oracle Database and Oracle's ZFS Storage Appliances.

- Available *only* for Oracle Database 12c customers using Oracle Direct NFS (dNFS) with Oracle ZFS Storage Appliances that are running software version OS[8]

Oracle's ZS3 systems dynamically assign system resources to optimize Oracle Database performance and efficiency

Automatic Data Optimization

Usage Based Data Compression



3X

Advanced Row Compression

10X

Columnar Query Compression

15X

Columnar Archive Compression

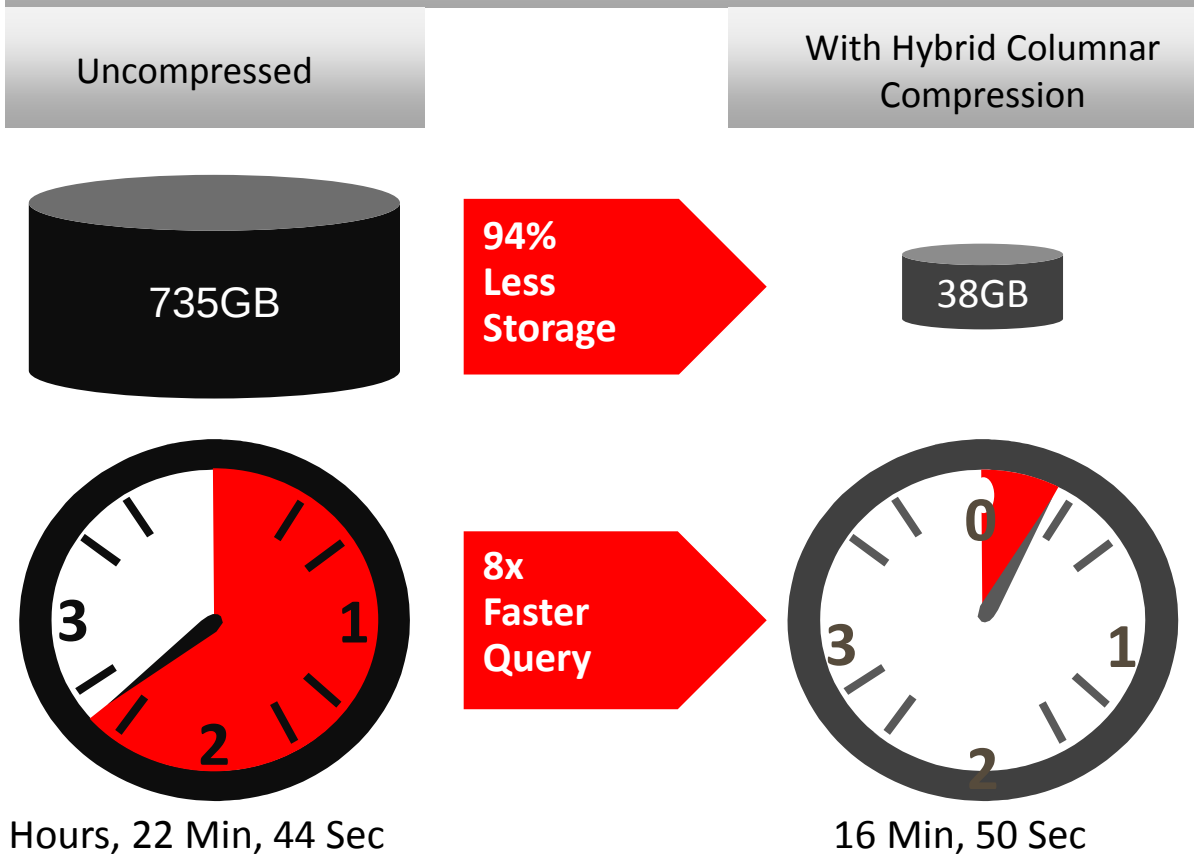
Hybrid Columnar Compression (HCC)

Store Less Data AND Run Faster

Oracle Database Hybrid Columnar Compression

- Up to 50x space reduction
- Average 5x faster queries
- Only available on Oracle storage
- Increases performance for most data warehouse and data protection

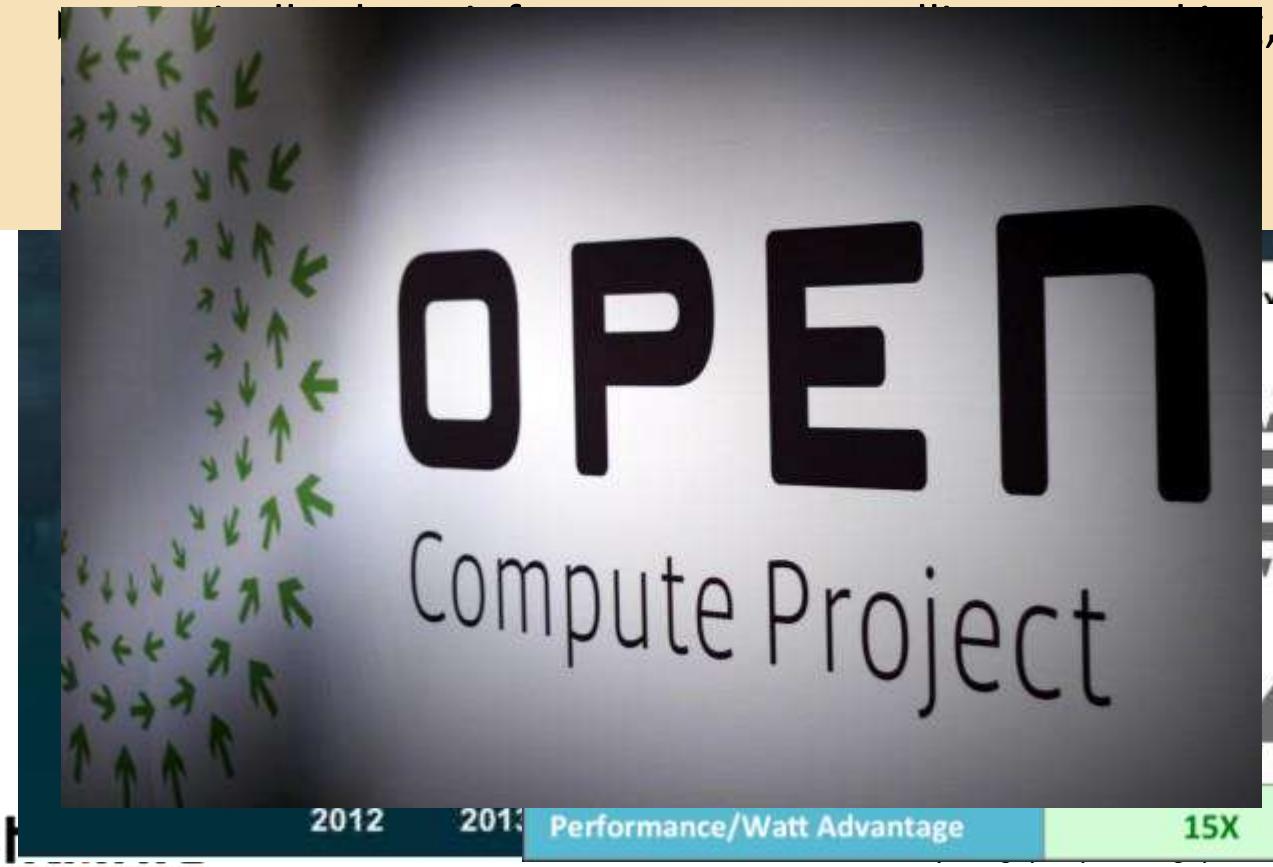
Retail Data Warehouse Example



STKI Summit 2014 Frame tale: The System manager

What's in the DC? Servers!

- Small form-factor, system-on-a-chip boards, which pack the CPU, memory and system I/O onto a single integrated circuit
  - Less cooling than their traditional counterparts,
  - Packed together to save physical space



..The prices Fidelity pays for servers have declined 50% over the 2-1/2 years since the company started buying OCP-inspired systems from the custom builders..

Source: Calxeda

IBM is selling its Intel servers. Wow!

- How can we buy critical equipment made in China (from security=cyber point of view)?

- **That was a joke! We already do!**

FOXCONN®

Major customers [edit]

Major customers of Foxconn include or have included:

- Acer Inc. (Taiwan)[42]
- Amazon.com (United States)[9]
- Apple Inc. (United States)[43]
- BlackBerry Ltd. (Canada)[44]
- Cisco (United States)[45]
- Dell (United States)[46]
- Google (United States)[47]
- Hewlett-Packard (United States)[48]
- Microsoft (United States)[49]
- Motorola Mobility (United States)[46]
- Nintendo (Japan)[50]
- Nokia (Finland)[43][51]
- Sony (Japan)[10]
- Toshiba (Japan) [52]
- Vizio (United States)[53]
- Micromax Mobile (India)

Source: WIKI

Intel Roadmap - servers

Source: http://www.intel.com/content/www/us/en/processor-comparison/comparison-chart.html

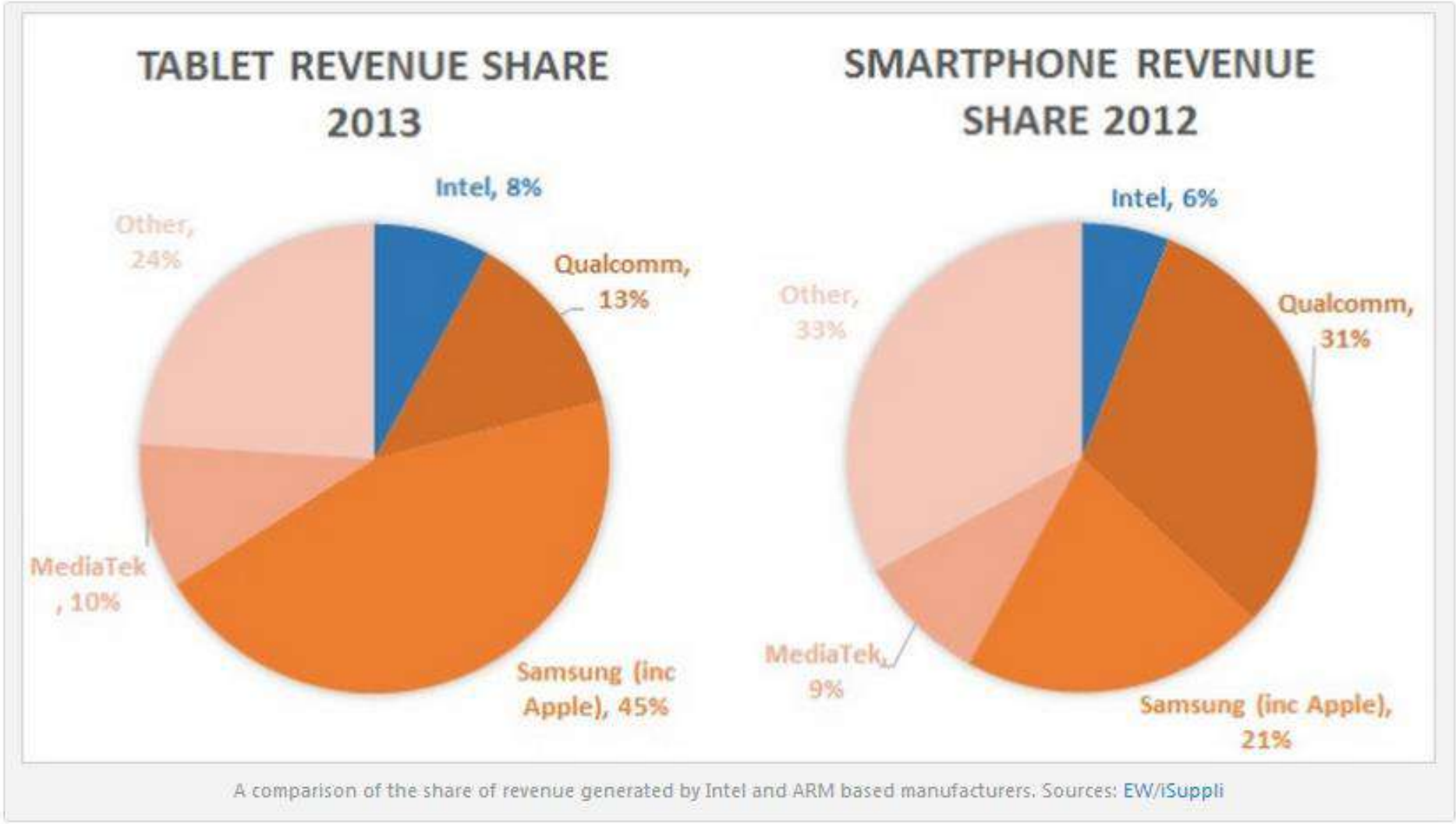
	Click to remove	Click to remove	Click to remove
Go back to selection	Intel® Xeon® Processor E7 v2 Family	Intel® Xeon® Processor 5000 Sequence	Intel® Atom™ Processor for Server
Rows with differences are highlighted		Shop now >	
Essentials			
Processor Number	E7-8890V2	X5690	C2350
Launch Date	Q1'14	Q1'11	Q3'13
# of Cores	15	6	2
# of Threads	30	12	2
Cache	37.5 MB	12.0 MB	1.0 MB
Clock Speed	2.80 GHz	3.46 GHz	1.70 GHz
Max Turbo Frequency	3.40 GHz	3.73 GHz	2.00 GHz
Bus/Core Ratio	-	26	-
Bus Type	QPI	QPI	-
Instruction Set	64-bit	64-bit	64-bit
Instruction Set Extensions	Intel® Advanced Vector Extensions (Intel® AVX)	SSE4.2	-
Lithography	22 nm	32 nm	22 nm
Scalability	S8S	-	-
Max TDP	155	130	6
VID Voltage Range	-	0.750V-1.350V	-

The increase in number of cores is good news for infra SW vendors that base their charge on cores: IBM, Microsoft, Oracle, etc.

Tablet & Smartphones revenue

A comparison of the share of revenue generated by Intel and ARM based manufacturers

Intel is still the leader in the PC and Windows market, but ARM processors dominated the Tablet & Smartphone markets. Therefore Intel is pushing hard towards the Mobile sector.



A comparison of the share of revenue generated by Intel and ARM based manufacturers. Sources: EW/iSuppli

Source: http://www.somedroid.com/2014/01/27/intel-vs-arm-and-the-future-of-mobile-technology/

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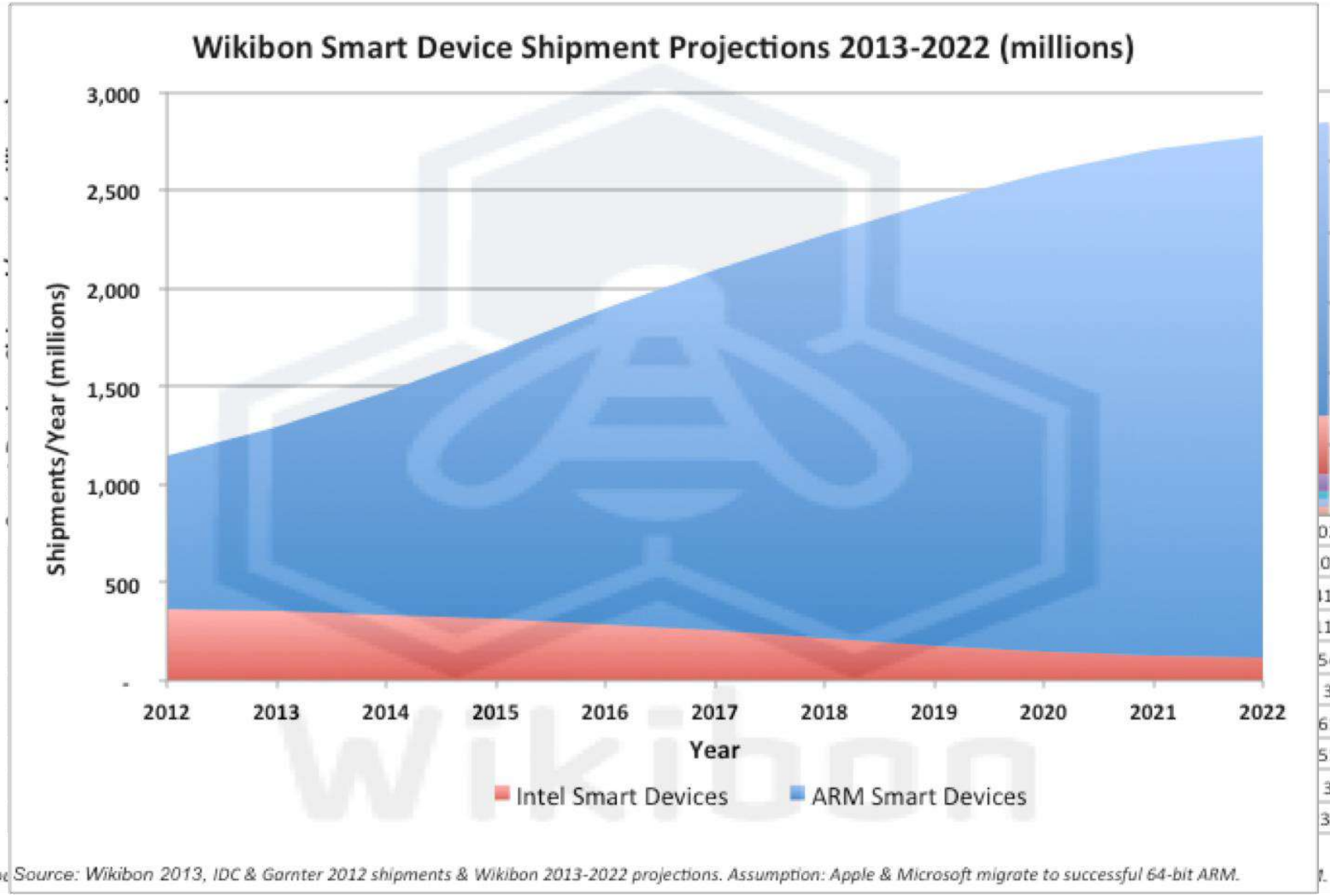
Smart device shipment comparison (estimated)

The smart device markets (including laptops PCs, desktop PCs, tablets and smartphones) will still be dominated by ARM processors for the next few years.



Source: http://wikibon.org/wiki/v/Intel_Post-PC_Blues_and_Client_Support_in_Software-led_Infrastructure

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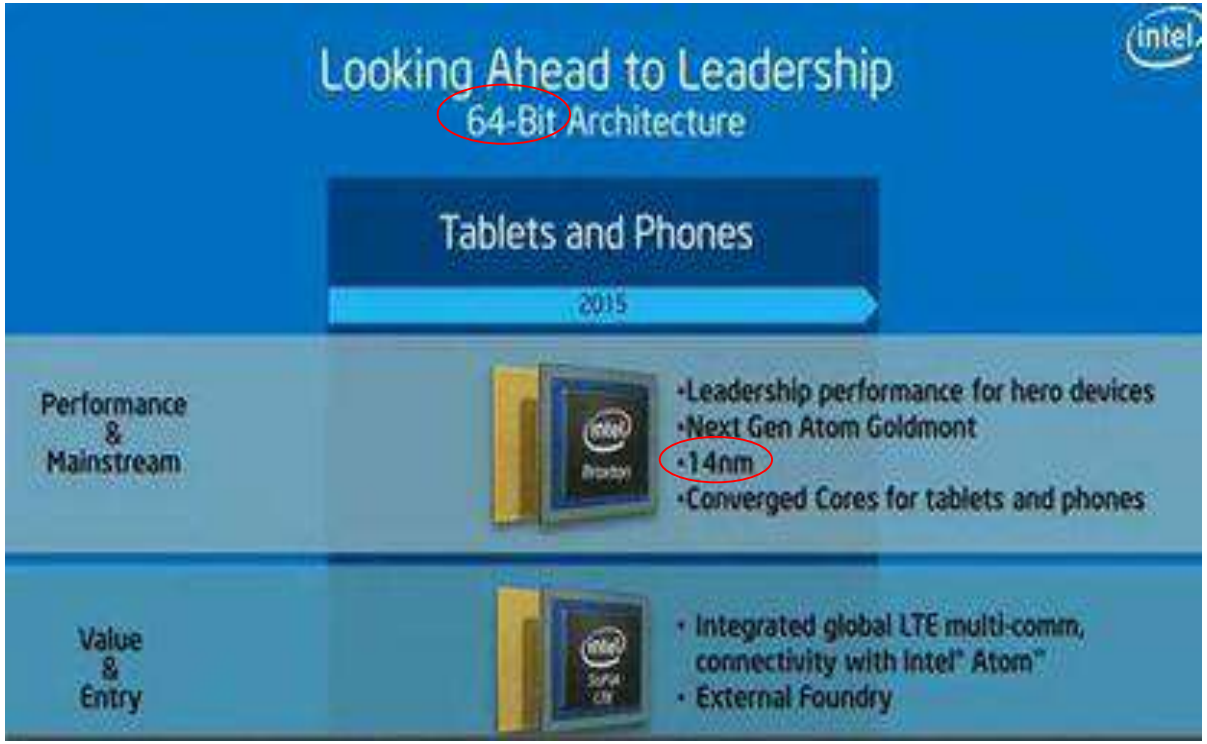
Tablet & Smartphones roadmap

intel

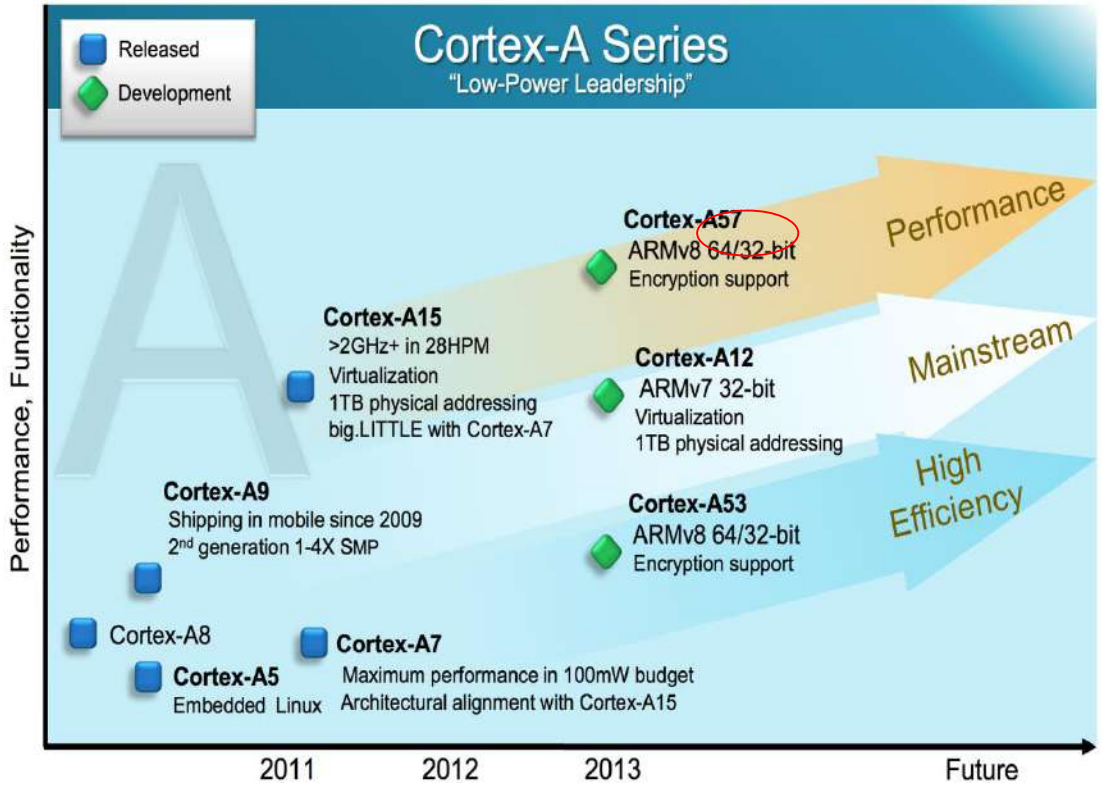
- The 64-Bit Atom chips for smartphones and tablets are based on new CPU and graphic cores and will likely appear next year.
- High-performance mobile chip code- Cherry Trail will be much faster and more power-efficient, and will have better battery life



Source:http://www.pcworld.idg.com.au/article/532575/intel_updates_atom_road_map_announces_chips_tablets_smartphones/

ARM

- The Cortex-A Series will focus on better performance and high efficiency.
- The ARM Cortex-A57 is 32-Bit, 14 nm, 1-4 cores per cluster, multiple clusters



Source: http://www.anandtech.com/show/7126/the-arm-diaries-part-2-understanding-the-cortex-a12

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Intel Desktops Comparison:

Source: http://www.intel.com/content/www/us/en/processor-comparison/comparison-chart.html

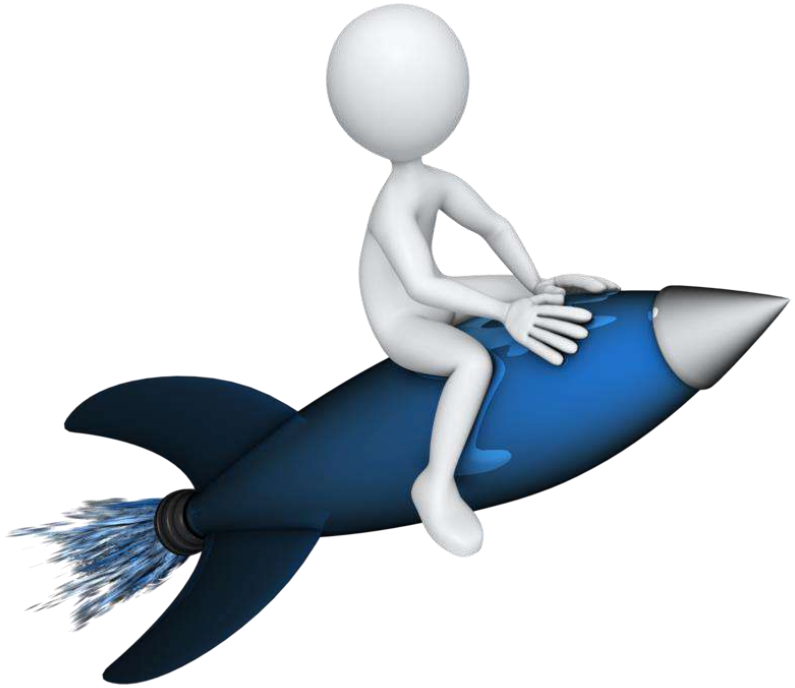
	Click to remove	Click to remove	Click to remove
Go back to selection	Previous Generation Intel® Core™ i7 Extreme Processor	4th Generation Intel® Core™ i5 Processors	Intel® Atom™ Processor
Rows with differences are highlighted			Shop now >
Essentials			
Processor Number	i7-990X	i5-4670T	D525
Launch Date	Q1'11	Q2'13	Q2'10
# of Cores	6	4	2
# of Threads	12	4	4
Cache	12.0 MB	6.0 MB	1.0 MB
Clock Speed	3.46 GHz	2.30 GHz	1.80 GHz
Max Turbo Frequency	3.73 GHz	3.30 GHz	-
Bus/Core Ratio	26	-	-
Bus Type	QPI	DMI2	DMI
Instruction Set	64-bit	64-bit	64-bit
Instruction Set Extensions	SSE4.2	SSE 4.1/4.2, AVX 2.0	SSE2, SSE3, SSSE3
Lithography	32 nm	22 nm	45 nm
Max TDP	130	45	13
VID Voltage Range	0.800V-1.375V	-	0.800V-1.175V

Intel Roadmap - servers

Source: http://www.intel.com/content/www/us/en/processor-comparison/comparison-chart.html

	Click to remove	Click to remove	Click to remove
Go back to selection	Intel® Xeon® Processor E7 v2 Family	Intel® Xeon® Processor 5000 Sequence	Intel® Atom™ Processor for Server
Rows with differences are highlighted		Shop now >	
Essentials			
Processor Number	E7-8890V2	X5690	C2350
Launch Date	Q1'14	Q1'11	Q3'13
# of Cores	15	6	2
# of Threads	30	12	2
Cache	37.5 MB	12.0 MB	1.0 MB
Clock Speed	2.80 GHz	3.46 GHz	1.70 GHz
Max Turbo Frequency	3.40 GHz	3.73 GHz	2.00 GHz
Bus/Core Ratio	-	26	-
Bus Type	QPI	QPI	-
Instruction Set	64-bit	64-bit	64-bit
Instruction Set Extensions	Intel® Advanced Vector Extensions (Intel® AVX)	SSE4.2	-
Lithography	22 nm	32 nm	22 nm
Scalability	S8S	-	-
Max TDP	155	130	6
VID Voltage Range	-	0.750V-1.350V	-

The increase number of cores is good news for infra SW vendors that base their charge on cores: IBM, Microsoft, Oracle, etc.

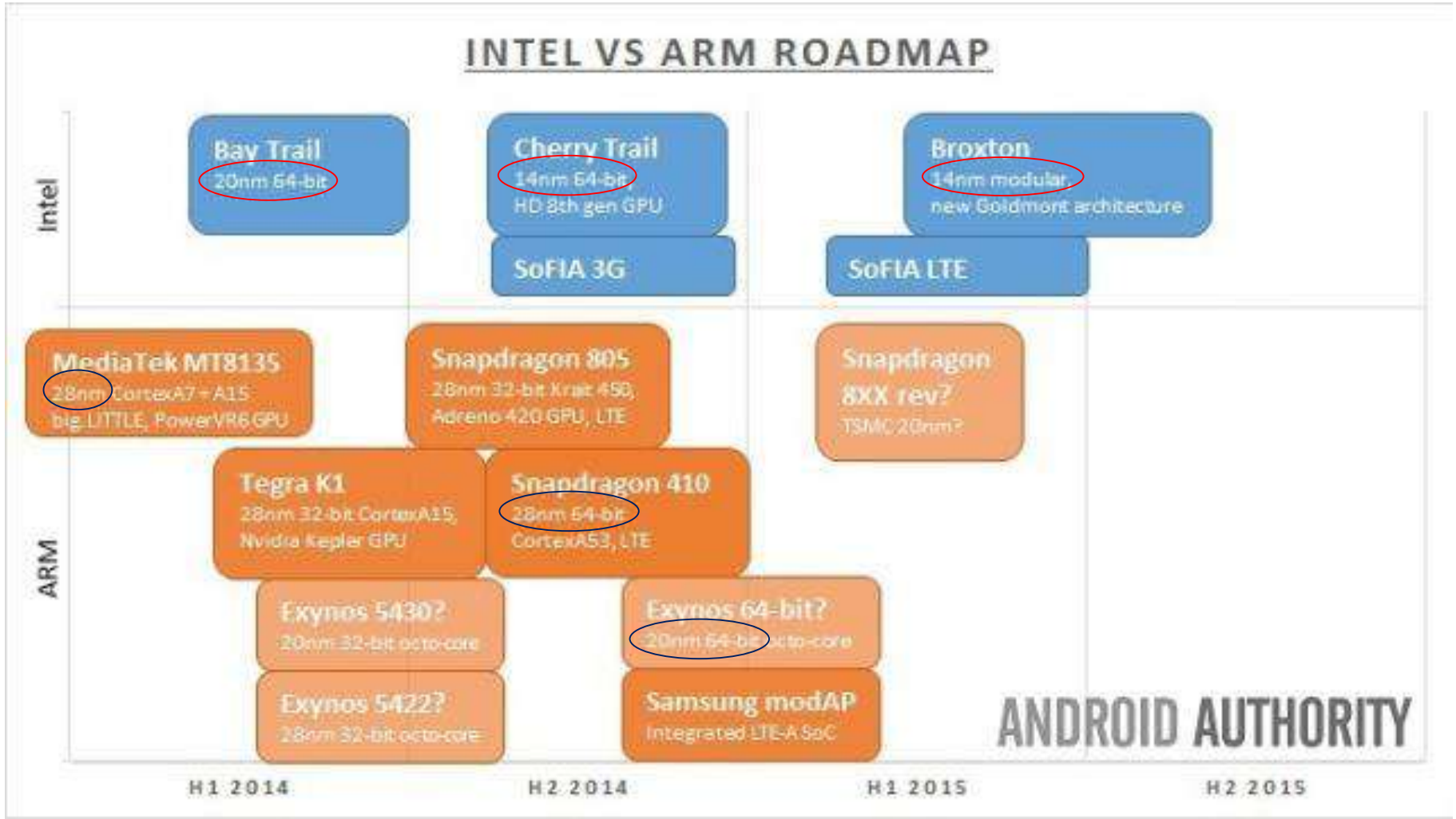


Intel Mobile Comparison:

Source: http://www.intel.com/content/www/us/en/processor-comparison/comparison-chart.html

	Click to remove	Click to remove	Click to remove
Go back to selection	4th Generation Intel® Core™ i7 Extreme Processor	4th Generation Intel® Core™ i5 Processors	Intel® Atom™ Processor
Rows with differences are highlighted			Shop now >
Essentials			
Processor Number	i7-4940MX	i5-4360U	Z560
Launch Date	Q1'14	Q1'14	Q2'10
# of Cores	4	2	1
# of Threads	8	4	2
Cache	8.0 MB	3.0 MB	512 KB
Clock Speed	3.10 GHz	1.50 GHz	2.13 GHz
Max Turbo Frequency	4.00 GHz	3.00 GHz	-
Bus/Core Ratio	-	-	16
Bus Type	DMI2	DMI2	FSB
Instruction Set	64-bit	64-bit	32-bit
Instruction Set Extensions	SSE 4.1/4.2, AVX 2.0	SSE 4.1/4.2, AVX 2.0	SSE2, SSE3, SSSE3
Lithography	22 nm	22 nm	45 nm
Max TDP	57	15	2.5
VID Voltage Range	-	-	0.75V-1.1V

Roadmap - Mobile



Source: http://www.somedroid.com/2014/01/27/intel-vs-arm-and-the-future-of-mobile-technology/

STKI Summit 2014 Frame tale: The Endpoint manager

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Endpoint computing - Microsoft

- **Big investment in the Enterprise market**

2014-2015 Microsoft's strategic challenge lies not within enterprise but within the home consumers' and startups\internet companies

Thin\Zero clients

- Thin clients provide reliable, secure and green end point computing solution
- Mostly used in SBC environments running ICA\RDP\PCOIP protocol
- Large variety:
  - Fully functional and adaptable (but small) PC running Windows Embedded
  - Medium functionally lighter footprint devices based on Linux or Windows Embedded Compact
  - Zero clients : No OS\GUI , could be based on one-time programmable memory , boot from network or run a specific HW (Teradici card)
- Small footprints are more secure and lightweight but are difficult to update when needed

Source: http://www.parkytowers.me.uk/thin/index.shtml

Intel's Edison PC is the size of an SD card

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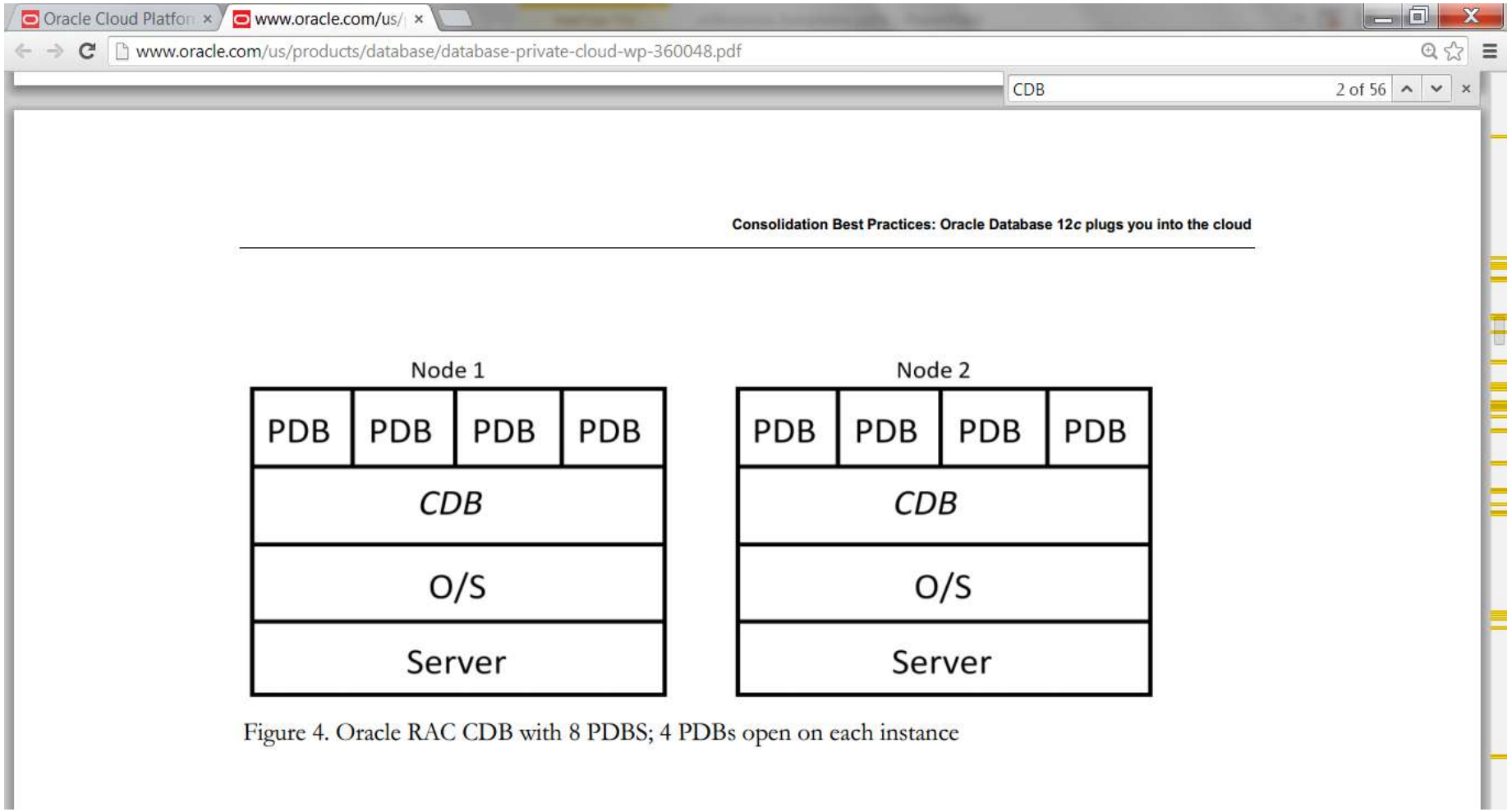
Oracle 12c Pluggable Database - containers!!

A multitenant container database (CDB) which can contain one or more pluggable databases (PDBs)

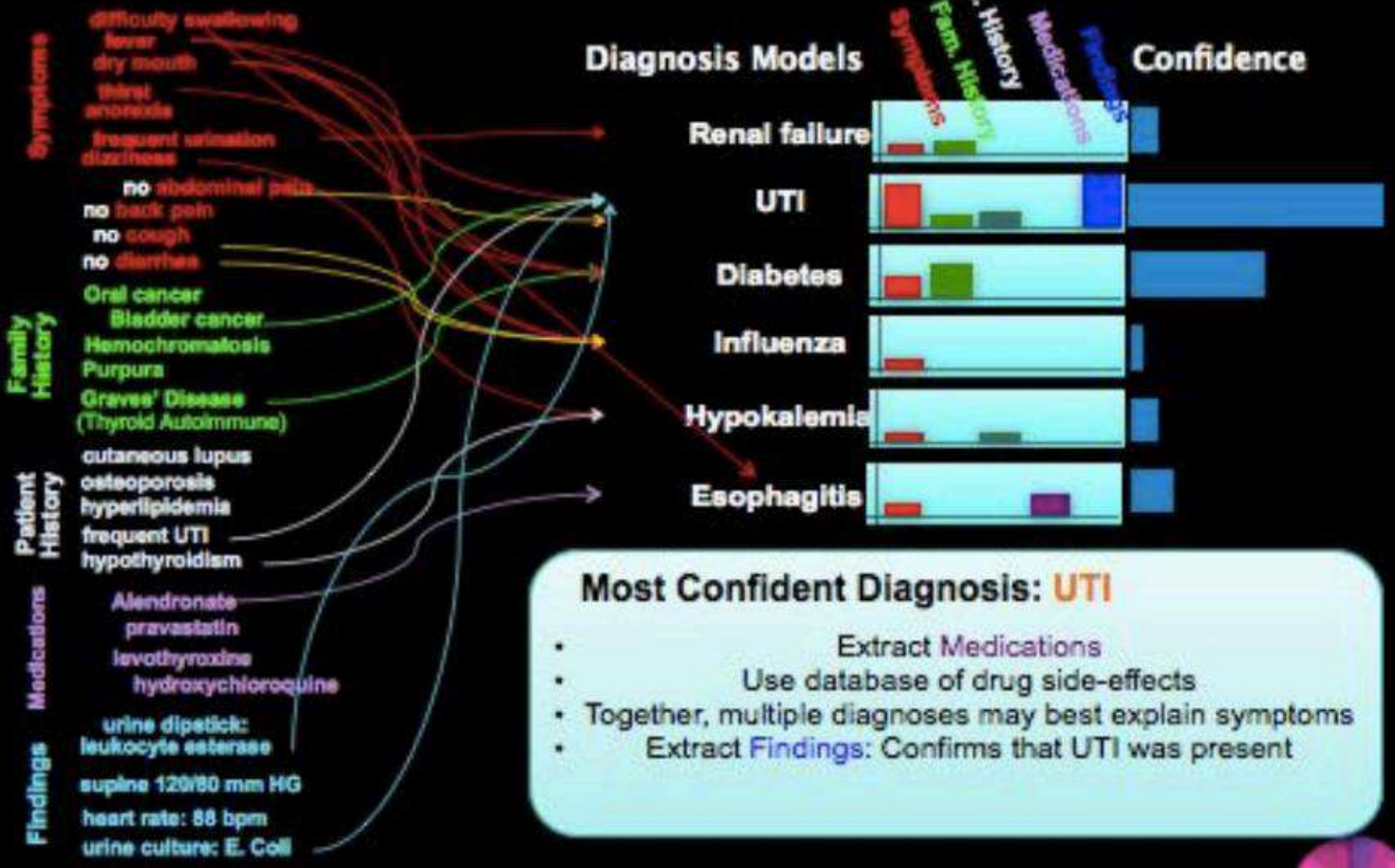


IBM

Putting it together at point of impact can be life changing

Findings

A urine dipstick was positive for leukocyte esterase and nitrites. The patient given a prescription for ciprofloxacin for a urinary tract infection. 3 days later, patient reported weakness and dizziness. Her supine blood pressure was 120/80 mm Hg, and pulse was 88.

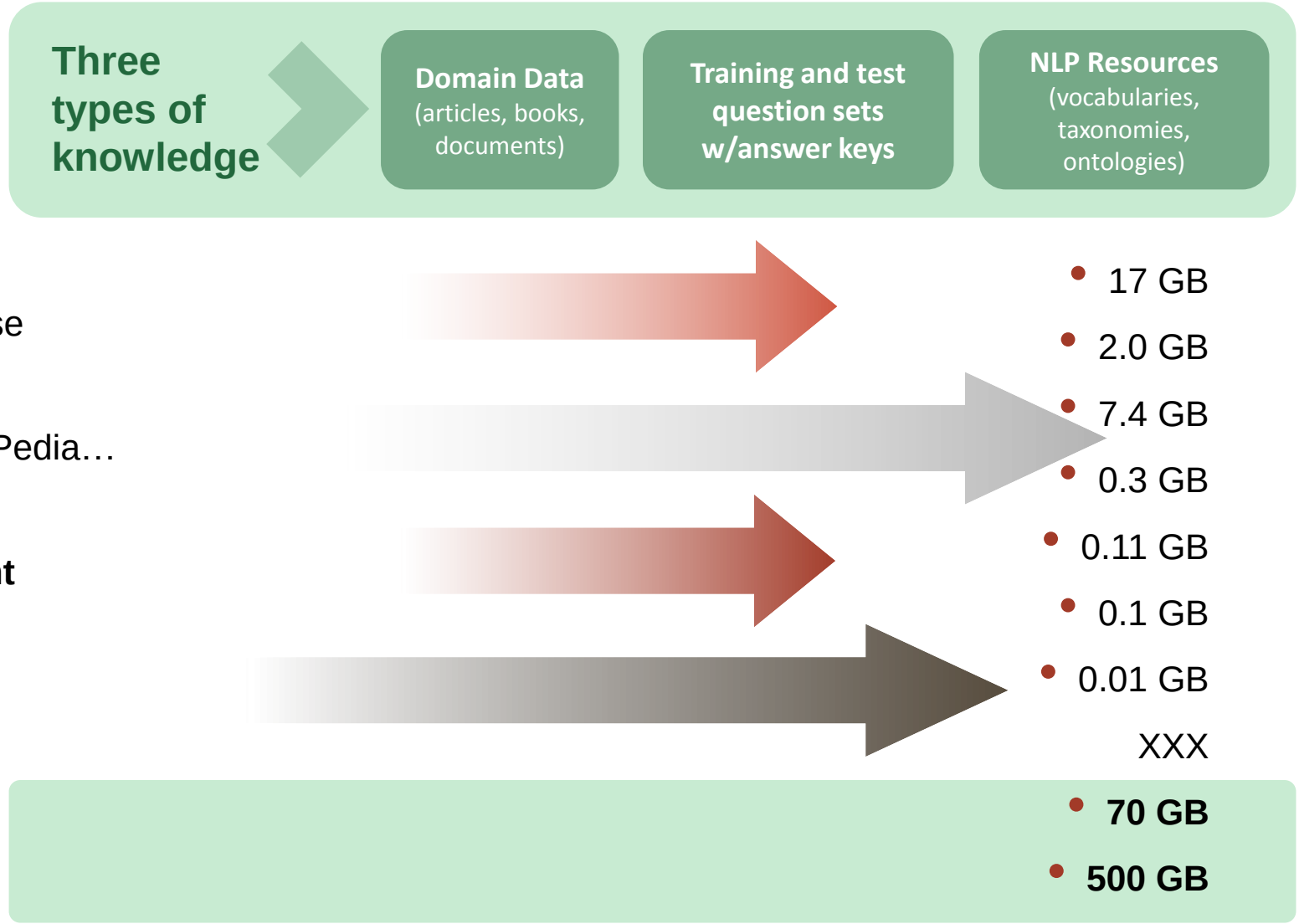


Most Confident Diagnosis: UTI

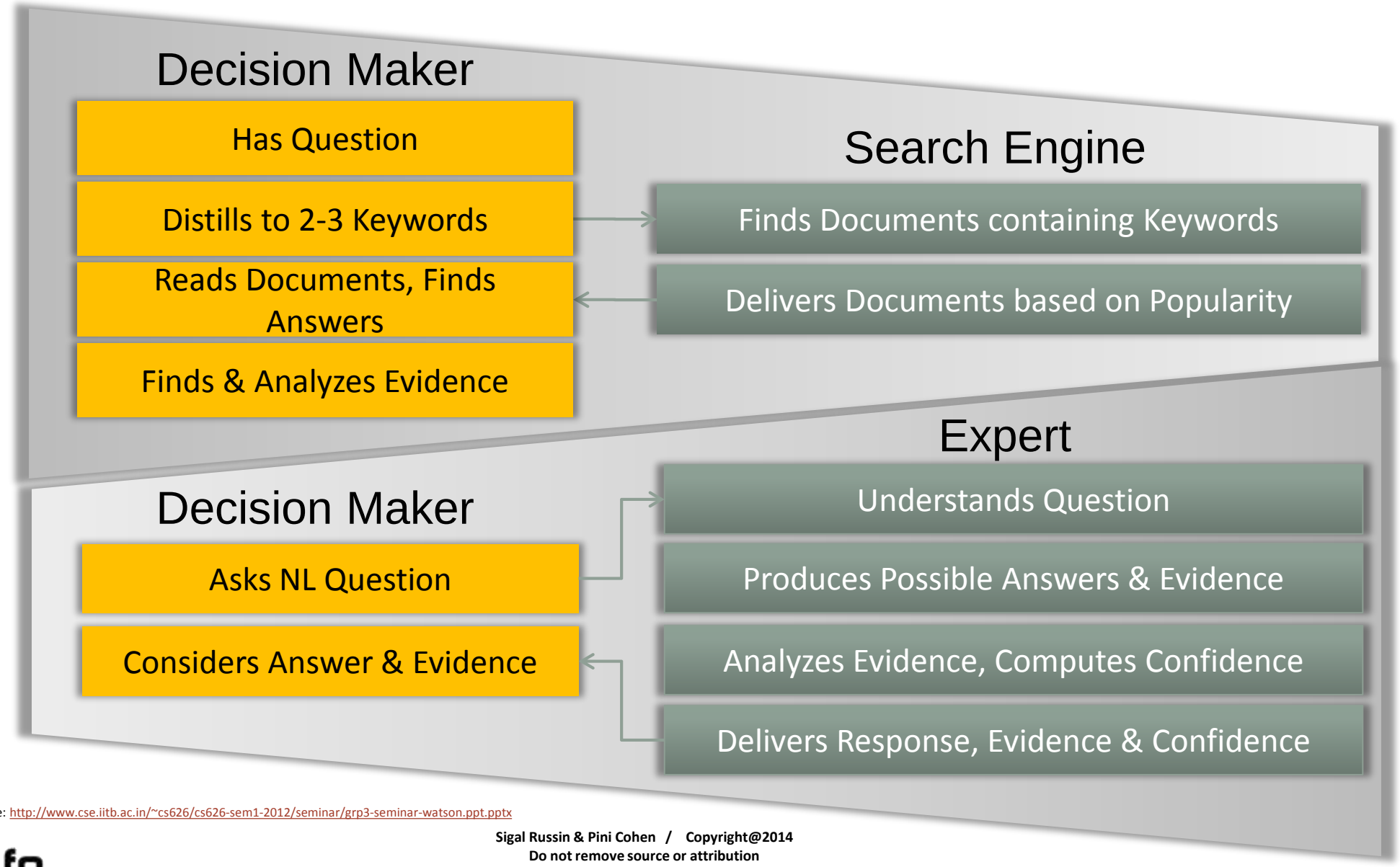
- Extract Medications
- Use database of drug side-effects
- Together, multiple diagnoses may best explain symptoms
- Extract Findings: Confirms that UTI was present

Where did it acquire knowledge?

- Wikipedia
- Time, Inc.
- New York Time
- Encarta
- Oxford University
- Internet Movie Database
- IBM Dictionary
- ... J! Archive/YAGO/dbPedia…
- **Total Raw Content**
- **Preprocessed Content**

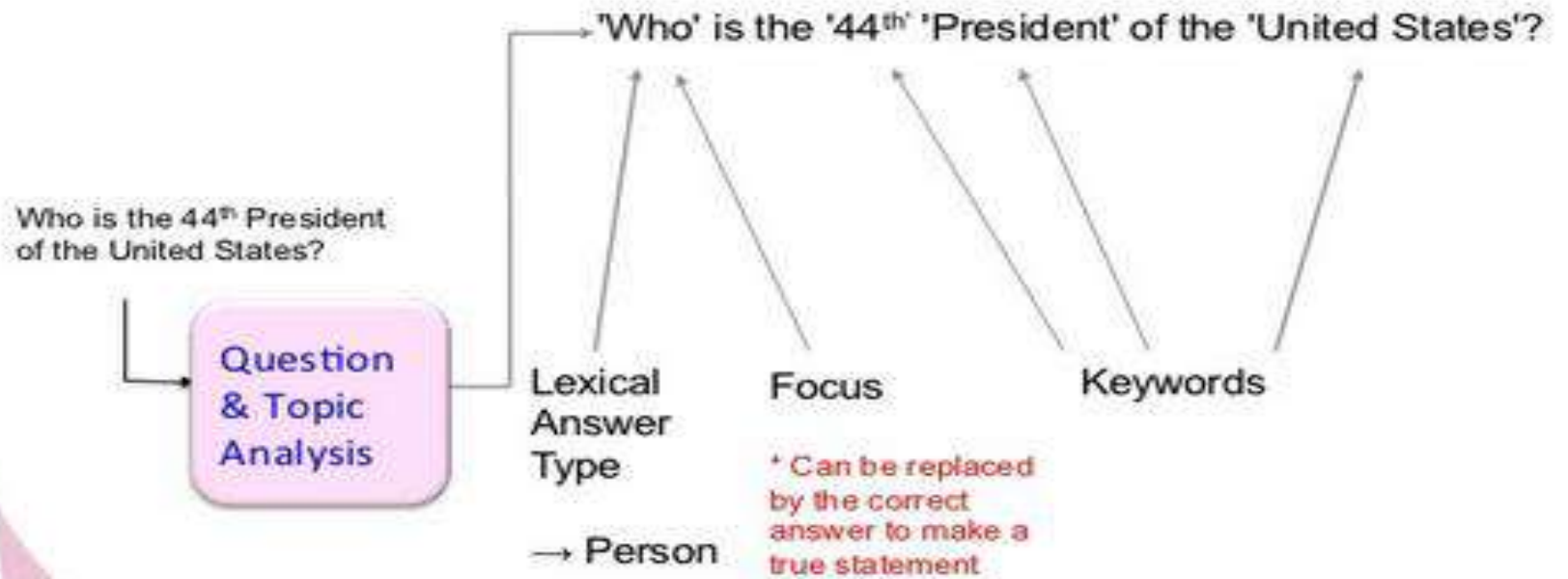


Search vs. Expert Q&A



Source: http://www.cse.iitb.ac.in/~cs626/cs626-sem1-2012/seminar/grp3-seminar-watson.ppt.pptx

Who is the 44th President of the United States?



Watson by R. Yates IBM

source: http://h30565.www3.hp.com/t5/Feature-Articles/How-Watson-Won-at-Jeopardy/ba-p/7752

Source: http://www.cse.iitb.ac.in/~cs626/cs626-sem1-2012/seminar/grp3-seminar-watson.ppt.pptx

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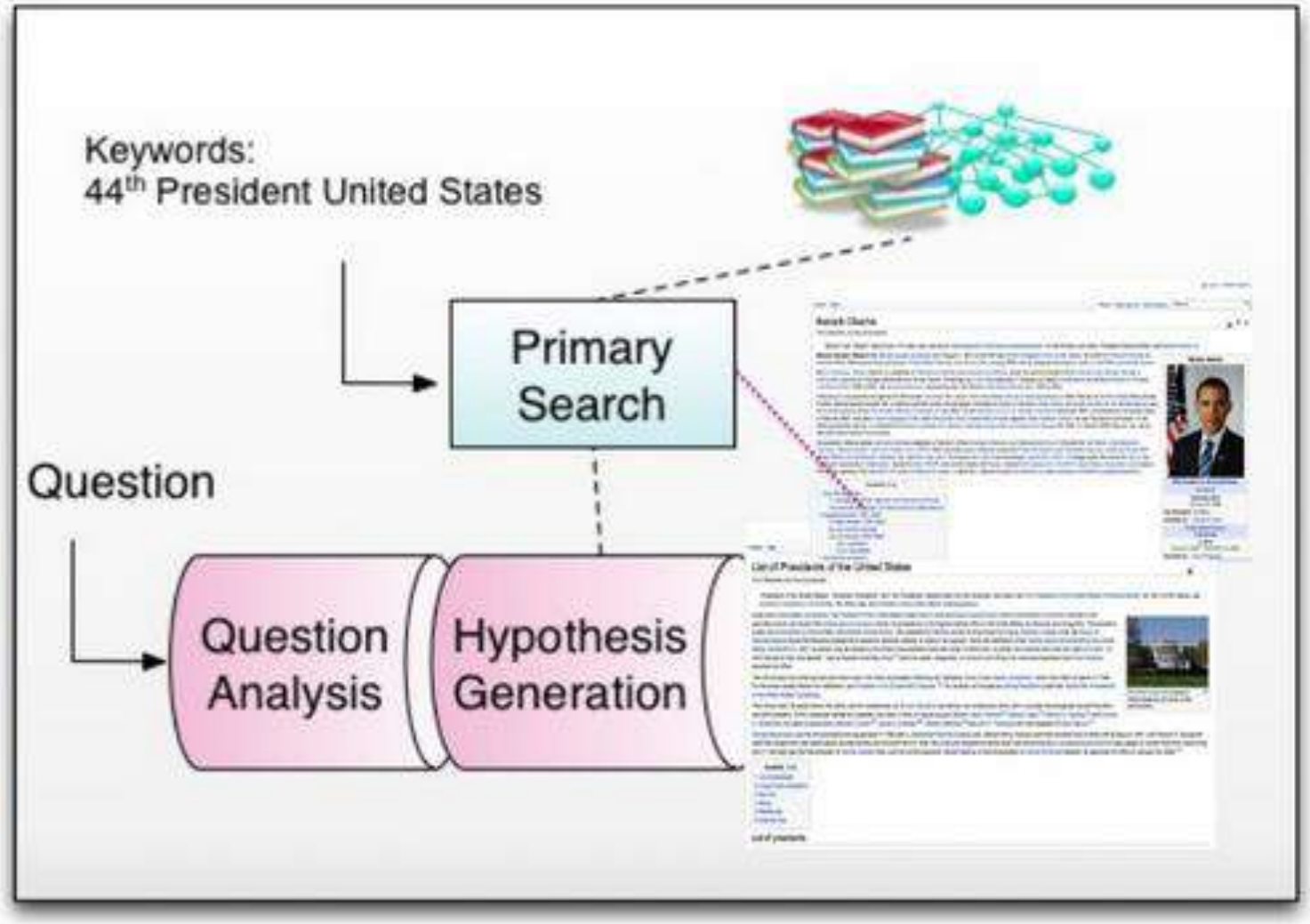
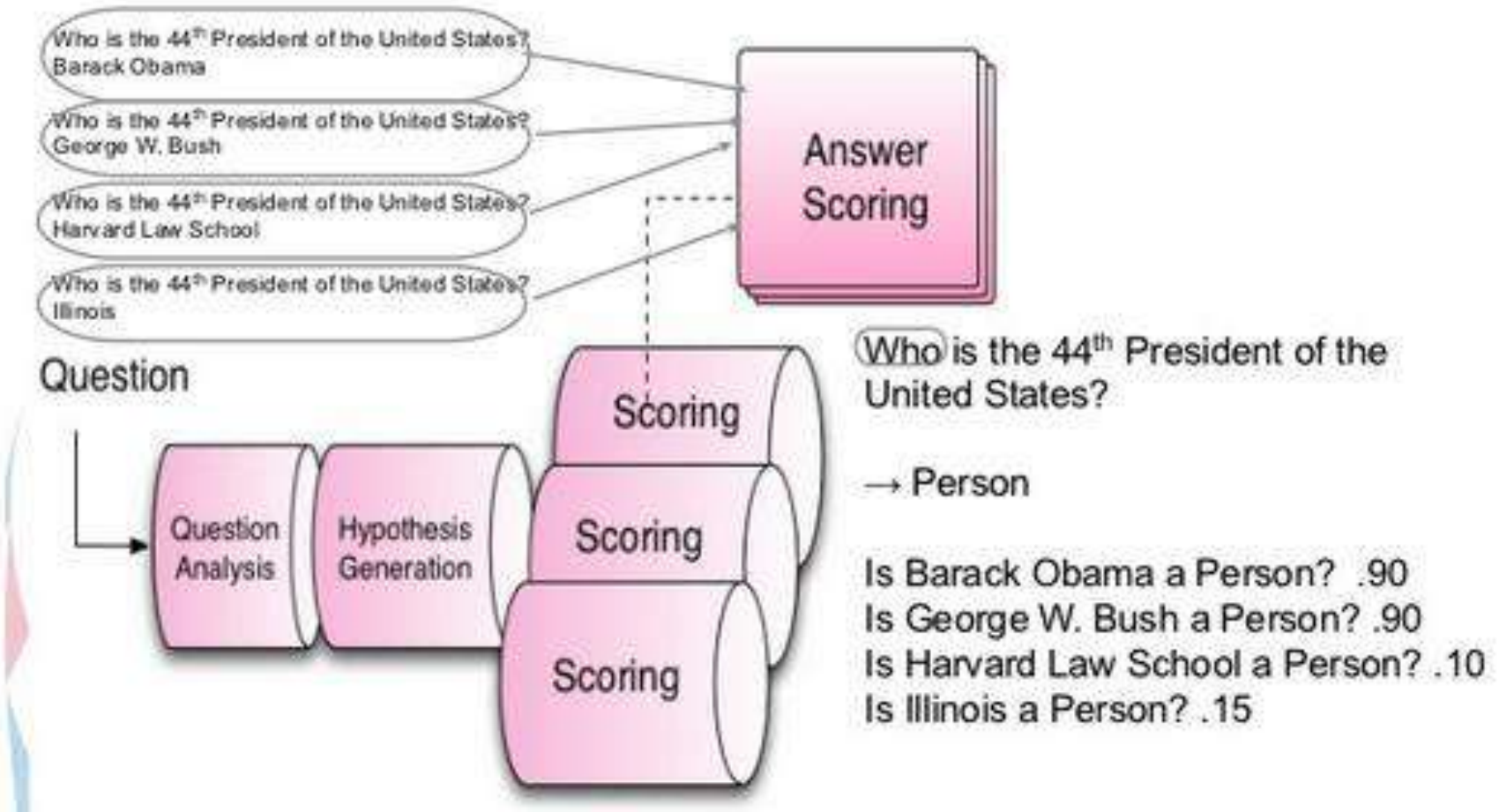


Source: http://www.cse.iitb.ac.in/~cs626/cs626-sem1-2012/seminar/grp3-seminar-watson_ppt.pptx

source: http://h30565.www3.hp.com/t5/Feature-Articles/How-Watson-Won-at-Jeopardy/ba-p/7752

Who is the 44th President of the United States?

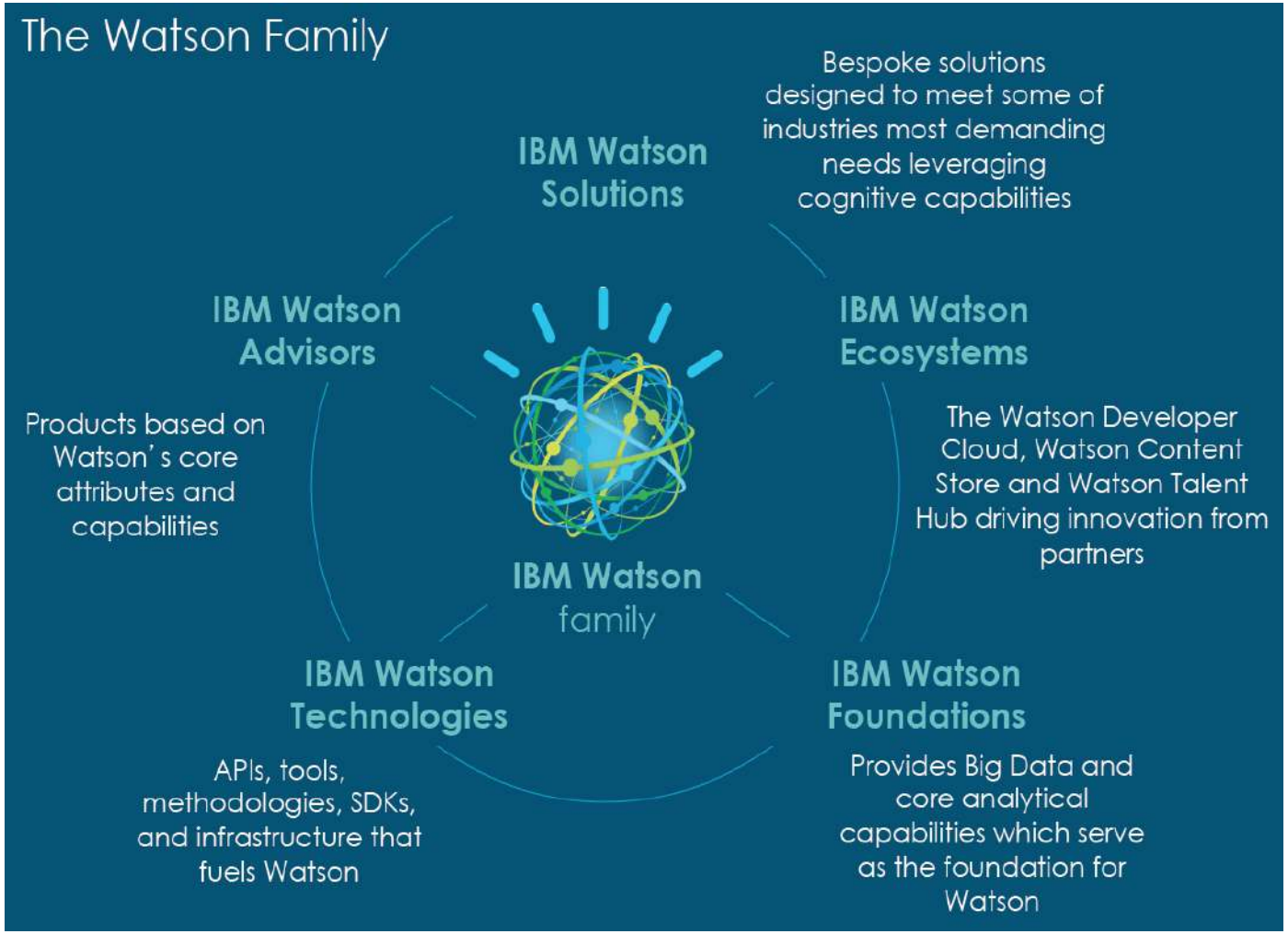


Source: http://www.cse.iitb.ac.in/~cs626/cs626-sem1-2012/seminar/grp3-seminar-watson.ppt.pptx

source: http://h30565.www3.hp.com/t5/Feature-Articles/How-Watson-Won-at-Jeopardy/ba-p/7752

IBM Watson products:

- Watson Engagement Advisor
- Watson Explorer
- IBM Content Analytics
- MD Anderson's Oncology Expert Advisor, powered by IBM Watson
- Wellpoint's Interactive Care Insights for Oncology, powered by IBM Watson
- Wellpoints's Interactive Care Guide and Reviewer, powered by IBM Watson
- Watson Discovery Advisor and Watson Analytics are both in beta
- Over time, the architecture of Watson Analytics, Watson Explorer and Content Analytics will be merged into the core Watson platform



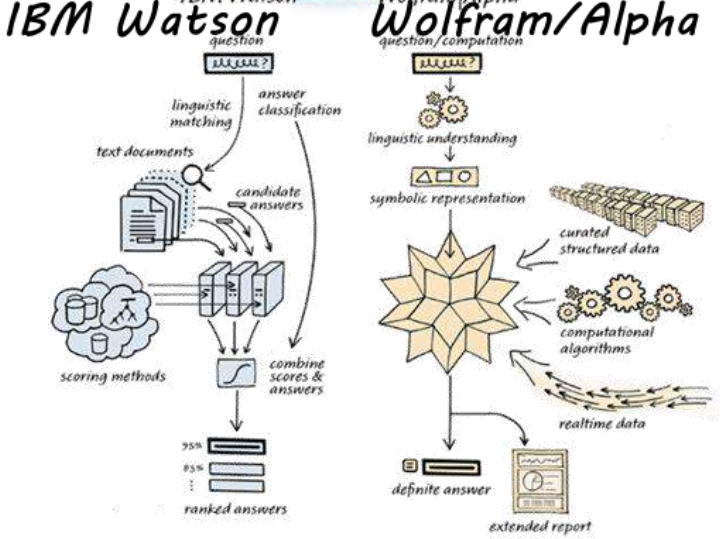
Second Machine Age

First Machine Age (Industrial Revolution; 1700s.)

- This period was all about **power systems to augment human muscle**, and each new invention delivered more and more power. But they all required humans to make decisions about them.
- Inventions of this era actually **made human control and labor more valuable** and important.

Labor and machines were complementary

Second Machine Age (starting 2006-8)

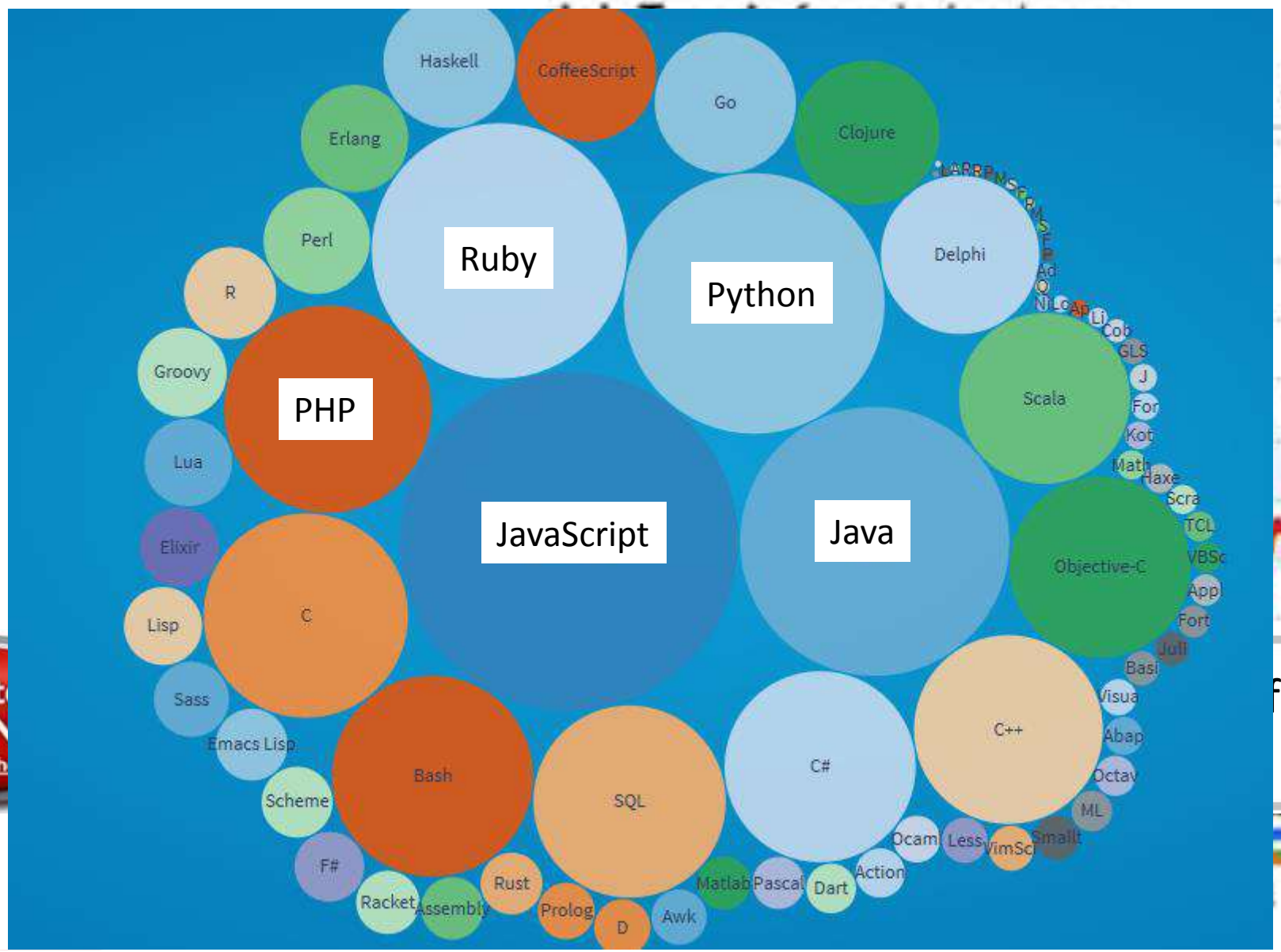


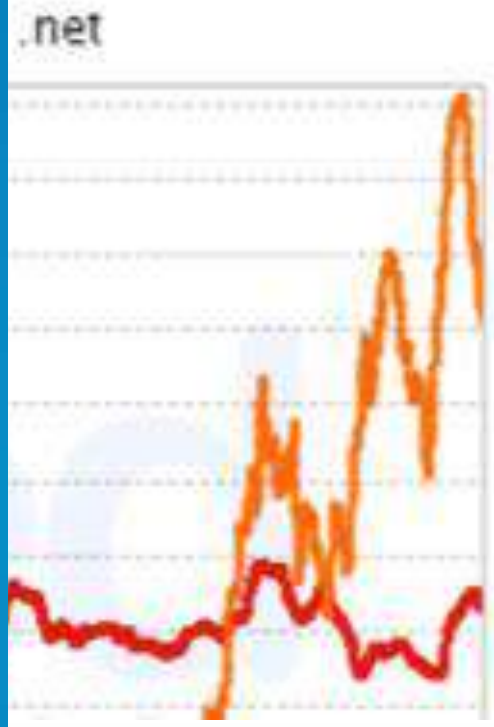
- We **automate a lot more cognitive tasks** and machines can make **better decisions than humans**.
- Three advances:
  - **Exponential:** relentless increase of digital inventions
  - **Digital :** the internet, the APP and API economies
  - **Combinatorial:** take Google Maps and combine them with an app like Waze
- Our generation can **rely on fewer people and more technology**.

Humans and software-driven machines may increasingly be substitutes, not complements

System of Engagement programming languages

But for "new developers"("Engagement") the picture is completely different (code123@herokuapp)





for Engagement

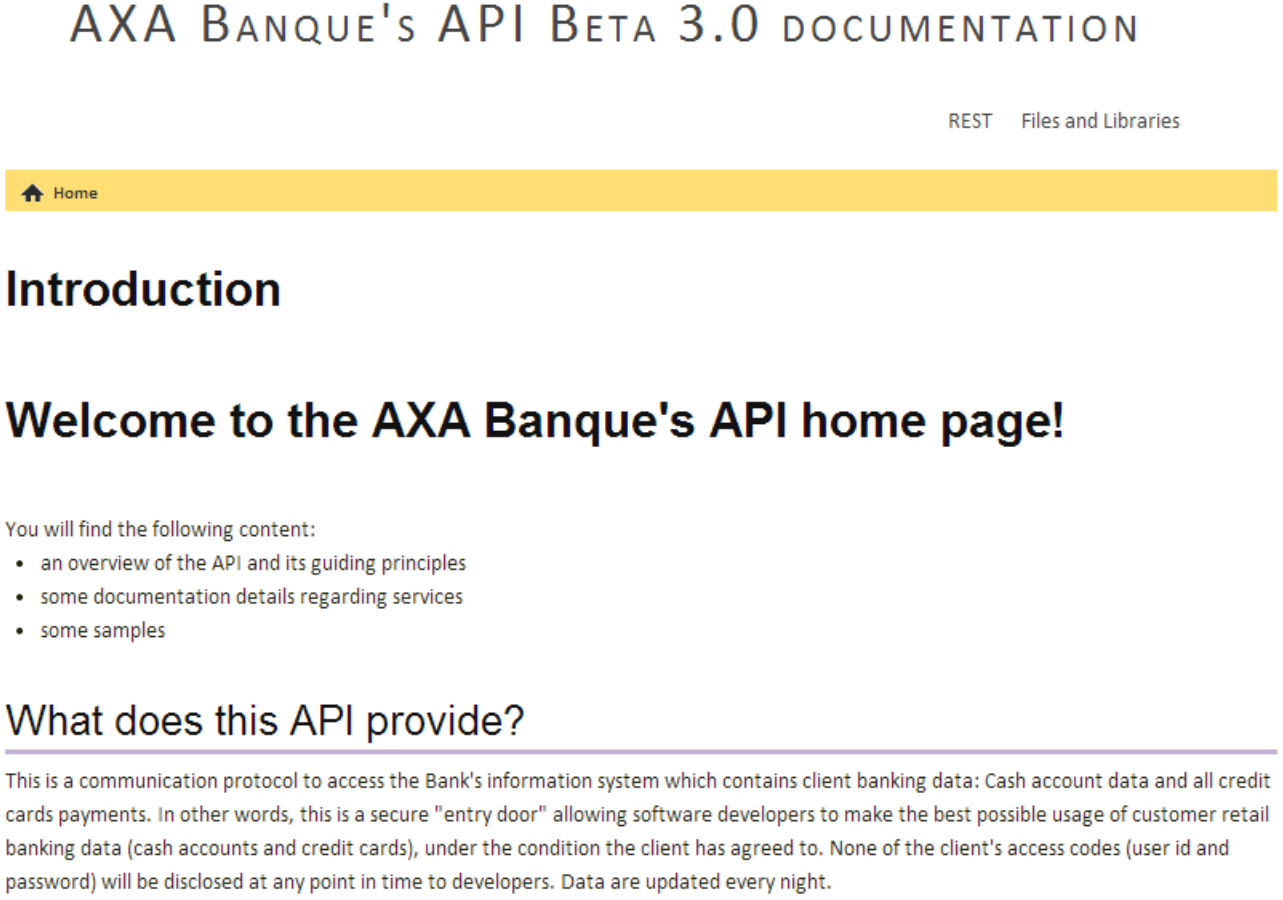
API Economy - new business based on API!

- Opens the Business to new partnerships \new ways of doing business

Sigal
D
From

Example for API Economy

- No more Banking APPs!
- Instead of making the “perfect” Banking app AXA bank announced a competition: “Retail Banking App Grand Prix by AXA Banque”!



Example for API need

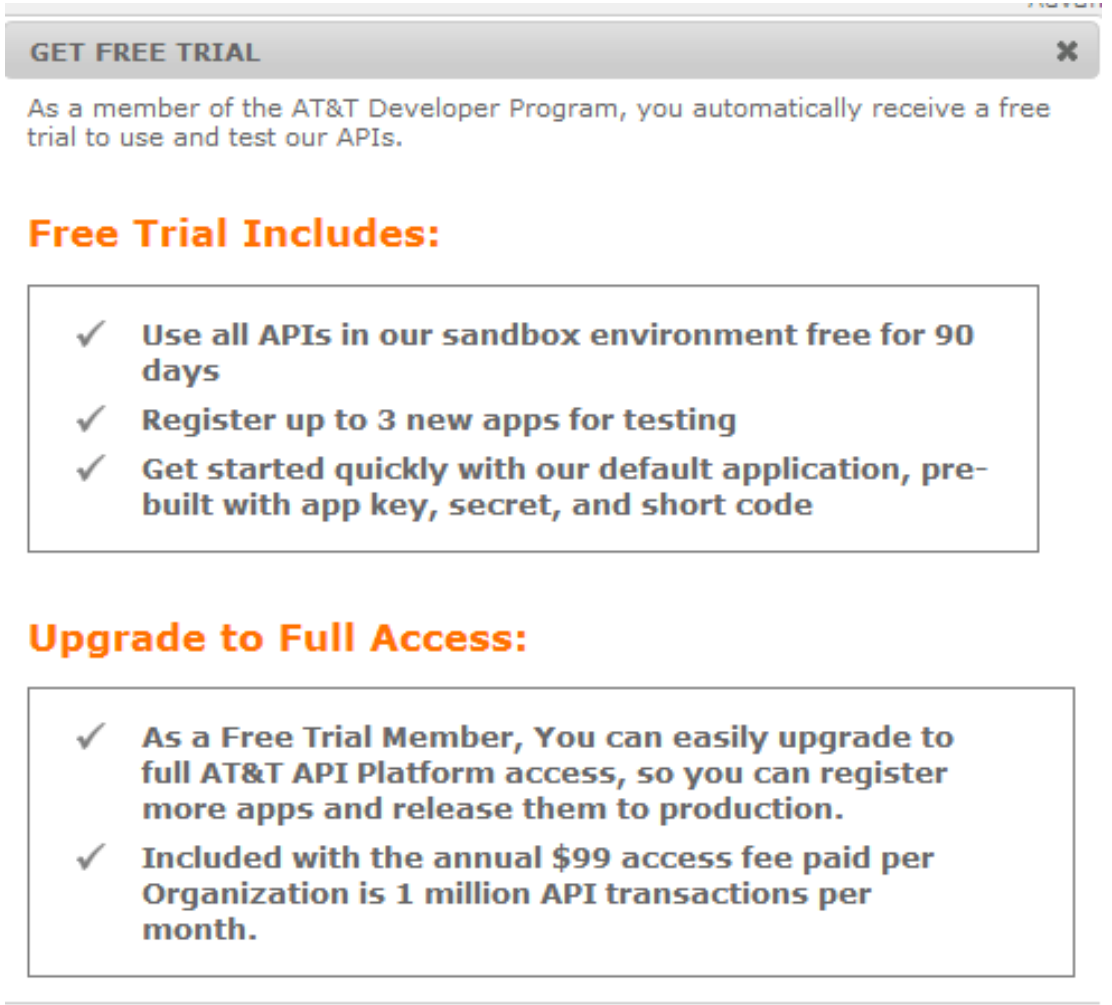
- Local Pizzeria wants to send SMS automatically when the delivery boy is near his destination or if the delivery boy is late.
- How can the local Pizzeria do business with a mobile company for sending the SMS in centralized way:
  - What will be the interface details between the Pizzeria SW and the mobile company (parameters, error codes, etc.)?
  - What will be the SLA?
  - How will the Pizzeria pay for this service?

Source: http://www.capri.com/en/c/pizzeria-aumm-aumm

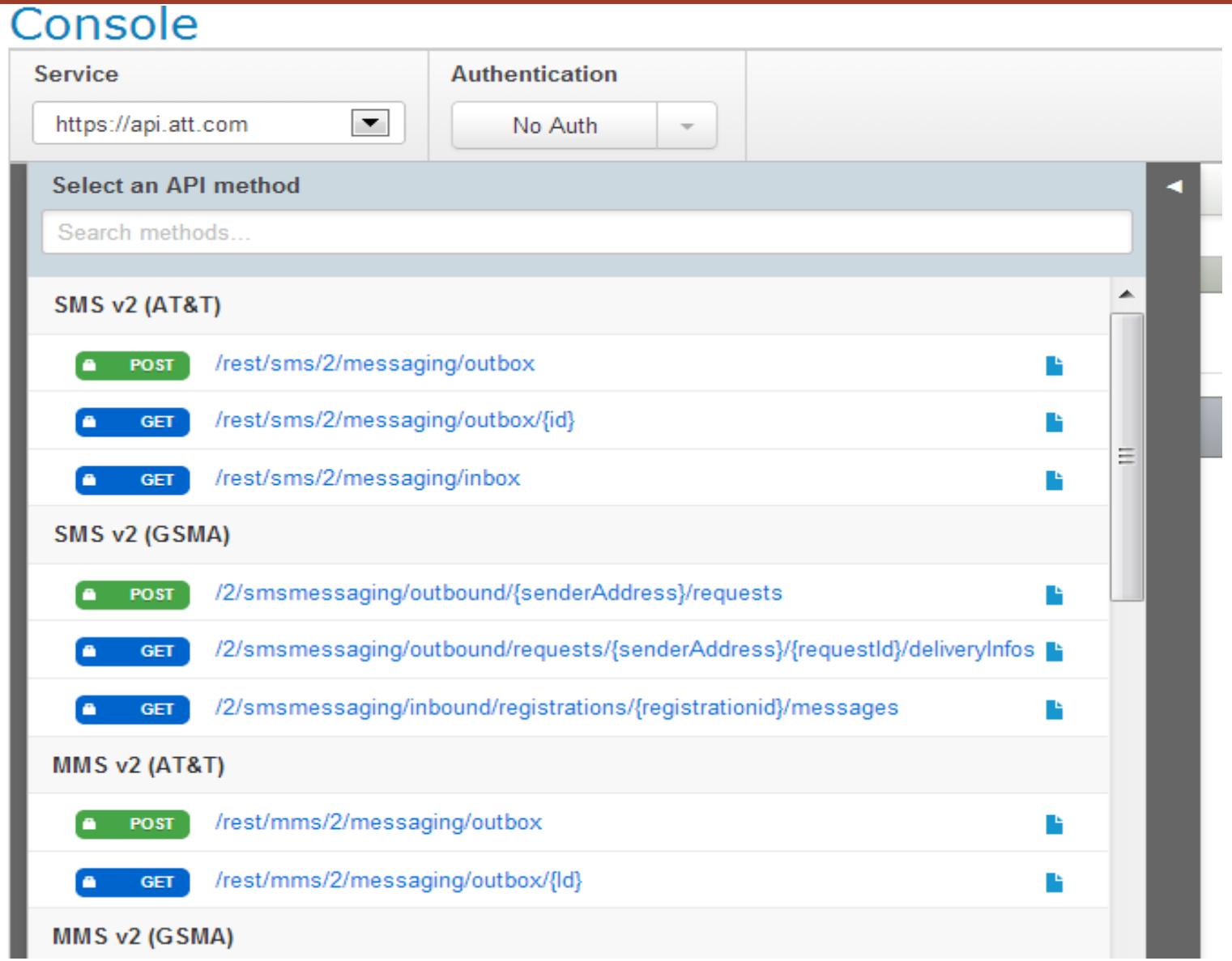
AT&T developer network

- Cost is 99$ for 1M API invocations per month
- After registration you get Authorization Code that will be used in the API call

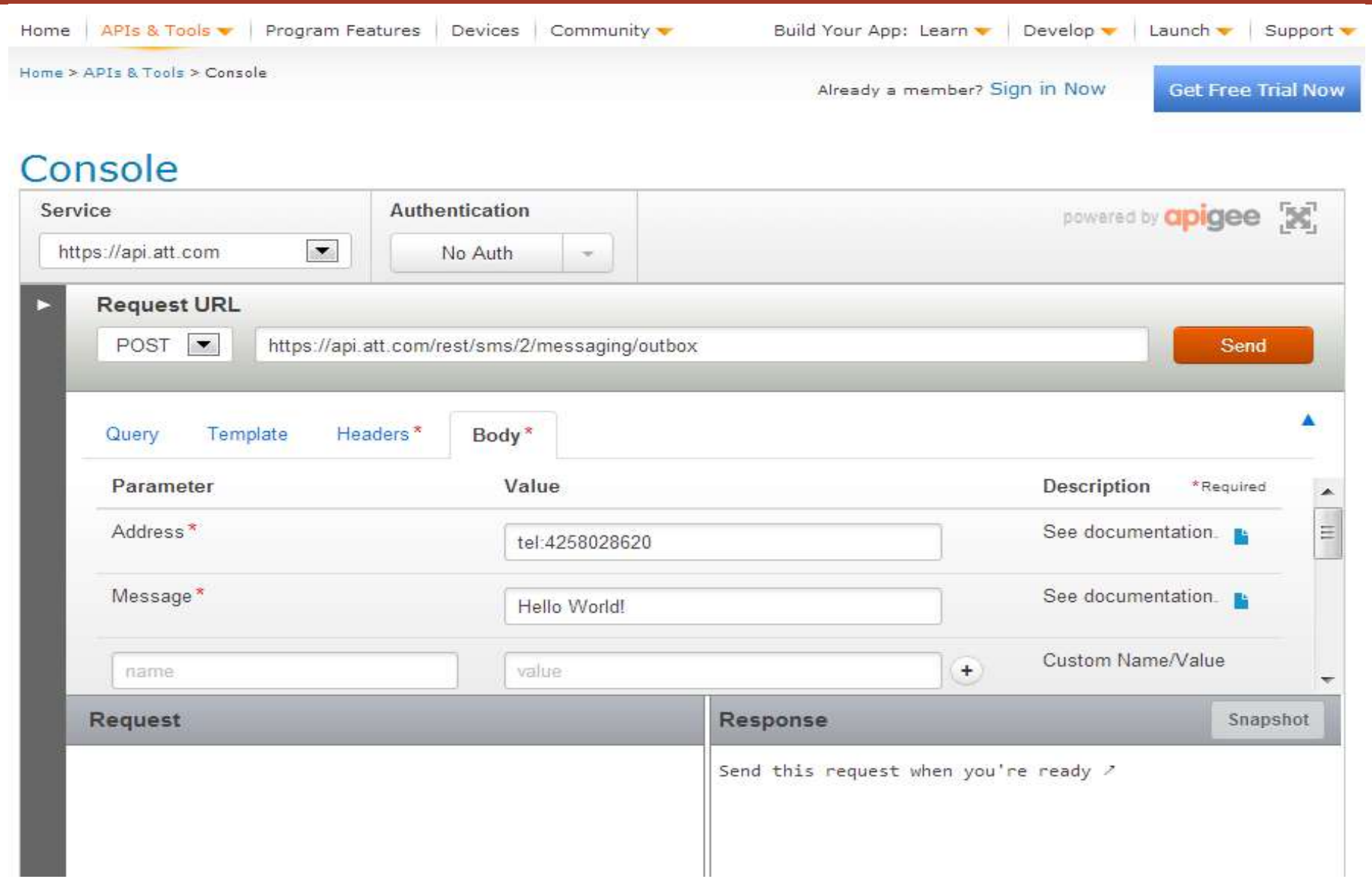
http://developer.att.com/developer



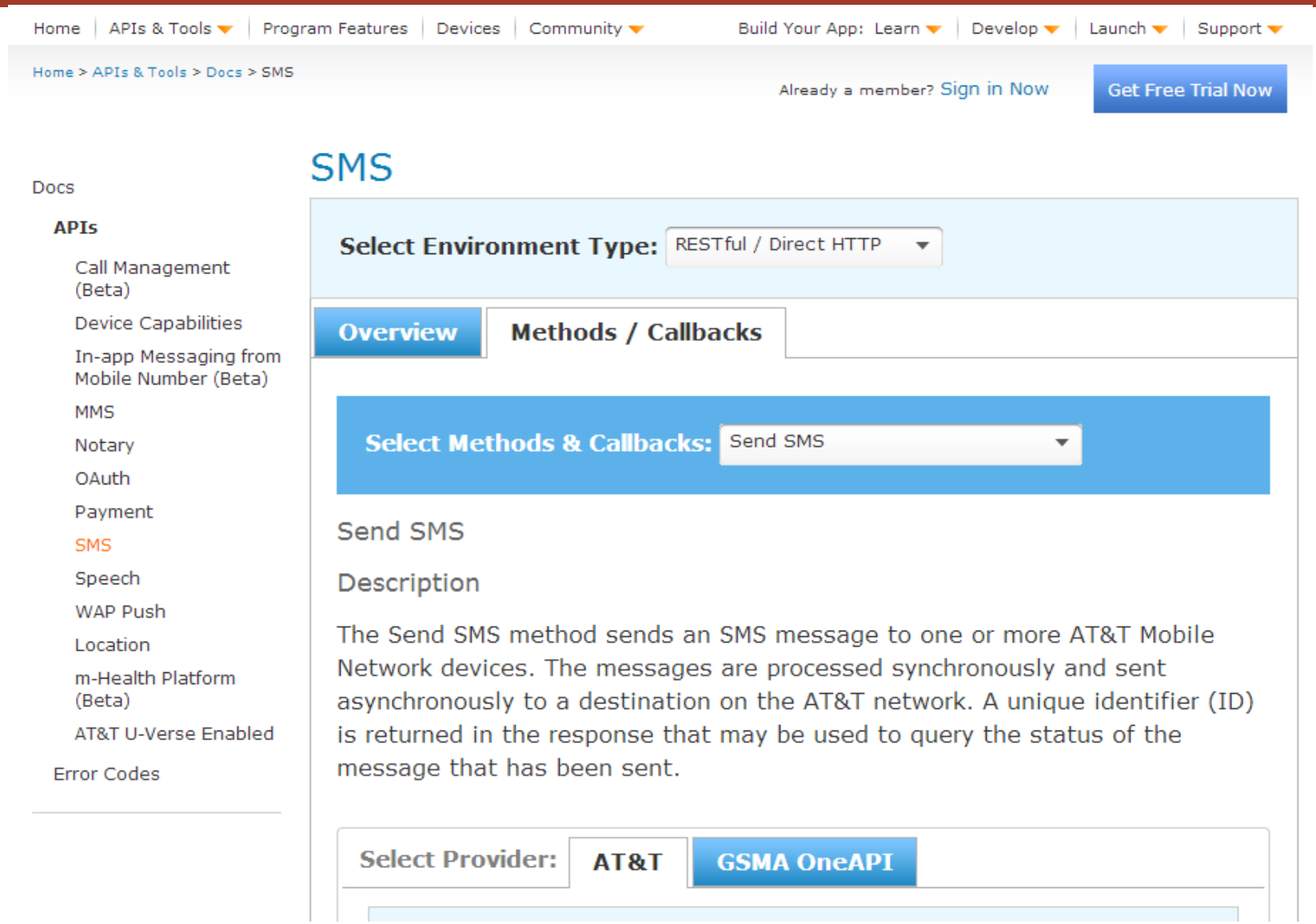
Finding the API needed



API description



API help



API help

			for the response. The acceptable values for this parameter are: • application/json • application/xml The default value is application/json.	
Authorization	String	true	Specifies the authorization. The acceptable format for this parameter is the word "Bearer" followed by an OAuth access token. If this parameter value is missing from the header, then the system returns an HTTP 400 Invalid Request message. If the OAuth access token is not valid, then the system returns an HTTP 401 Unauthorized message with a WWW-Authenticate HTTP header.	Header
Content-Type	String	true	Specifies the representation format of the request. The acceptable values for this parameter are: • application/json • application/xml • application/x-www-form-urlencoded	Header
Address	String [1.unbounded]	true	Specifies one or more destination addresses of the message. The acceptable format for this parameter is the protocol ID followed by the URL-escaped AT&T mobile number, such as tel%3A%2B16309700001, tel%3A16309700001, or tel%3A6309700001. The country code and preceding plus (+) symbol are optional.	Body
Message	String	true	Specifies the text of the message being sent. The maximum acceptable length for this parameter is 4096 characters.	Body

Request Back to Top

API help

- POST /rest/sms/2/messaging/outbox/ Authorization: Bearer xyz123456789 Accept: application/json Content-Type: application/json { "Message":“Hello World", "Address":"tel:6175105022" }
- xyz123456789 is the authorization code !

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API help - response and error codes

Response

Back to Top

application/json | application/xml

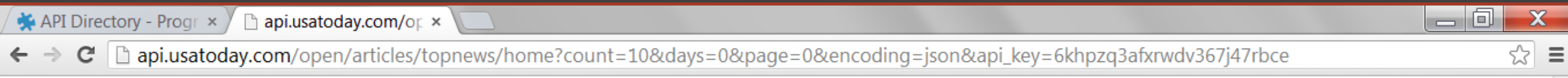
```
{
    "Id":"SMSc04091ed284f5684",
    "ResourceReference": {
        "ResourceURL":"https://api.att.com /rest/sms/2/messaging/outbox/S
    }
}
```

Errors

Back to Top

Error Code	Error Version	Error Message
00001	01	A policy error occurred. For example, a rate limit error, or an authentication and authorization error.
00002	01	Privacy verification failed for address "address", request is refused.
00003	01	Too many addresses specified in message part.
00004	01	Unlimited notification requests not supported.
00006	01	Group specified in message part "part name" not allowed.
00007	01	Nested groups not allowed.
00010	01	Retention time interval expired.
00013	01	Addresses duplication.

Example of real API invocation (USATODAY)



{"stories":[{"description":"The FAA has approved Boeing's plan to fix its 787 Dreamliner's fire-prone batteries.","guid":

Zoom in for the above example

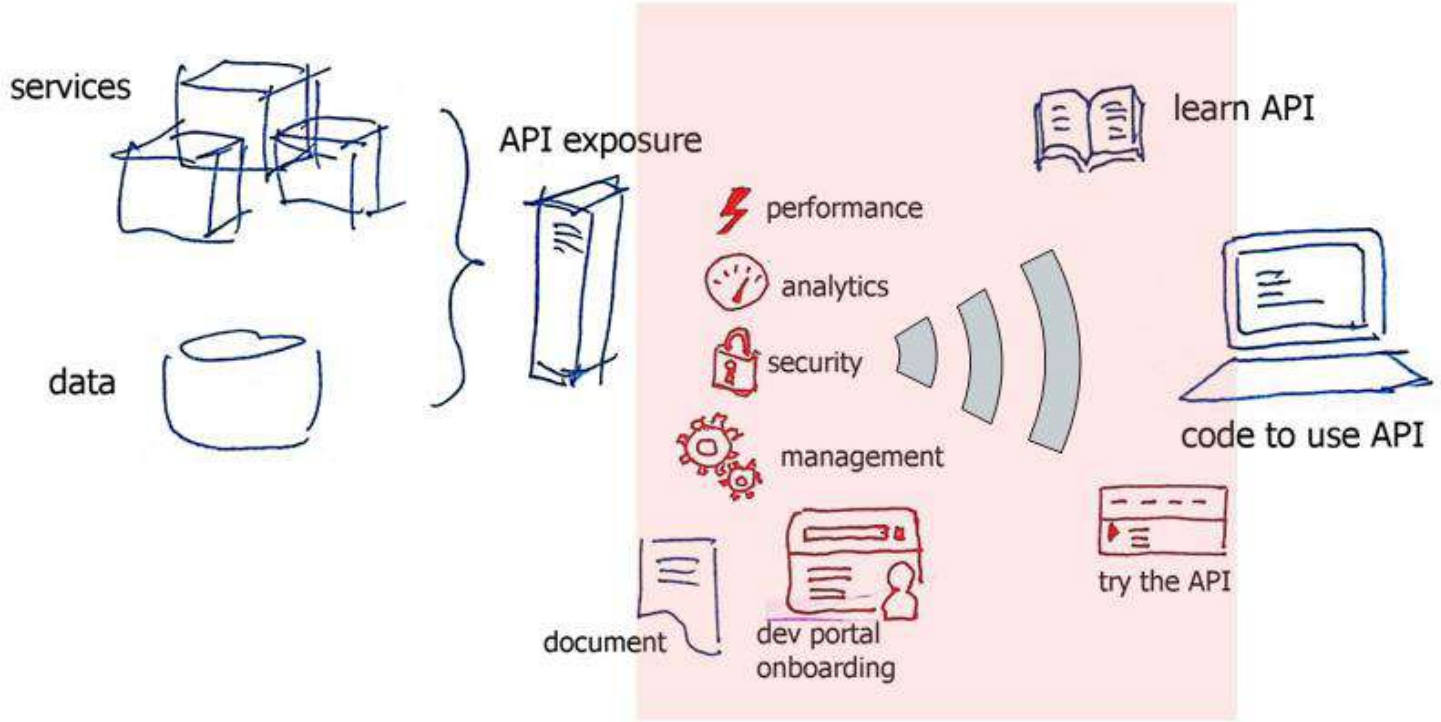
- The request -

http://api.usatoday.com/open/articles/topnews/home?count=10&days=0&page=0&encoding=json&api_key=6khpzq3afxrwdv367j47rbce

- The result :
- {"stories":[{"description":"The FAA has approved Boeing's plan to fix its 787 Dreamliner's fire-prone batteries.","guid":[{"isPermalink":"true","value":"http:\/\/apidata.usatoday.com\/story\/travel\/flights\/2013\/03\/12\/faa-boeing-dreamliners-fix\/1982935\/? ……..

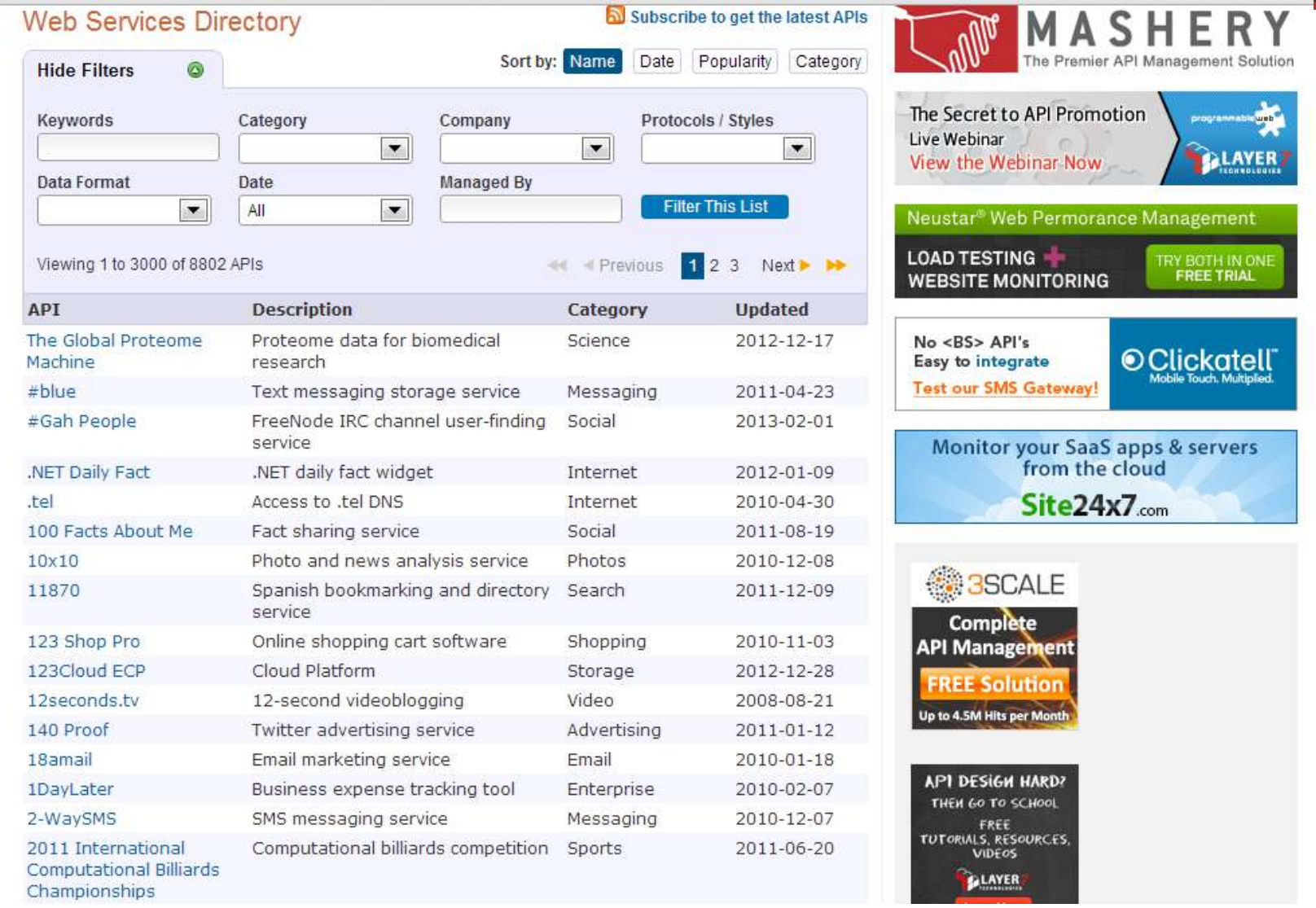
API management tools

- Provides developer portal for API provider to management developer onboarding, and also helps developer learn the API by playing with it.
- Example of API tools:
  - APIGee
  - Mashery
  - 3Scale
  - Layer7



Source: STKI modifications http://aleung.github.com/blog/2012/07/31/apigee/

Open API listing



Web Services Directory

Subscribe to get the latest APIs

Hide Filters

Sort by: Name | Date | Popularity | Category

Keywords | Category | Company | Protocols / Styles

Data Format | Date (All) | Managed By | Filter This List

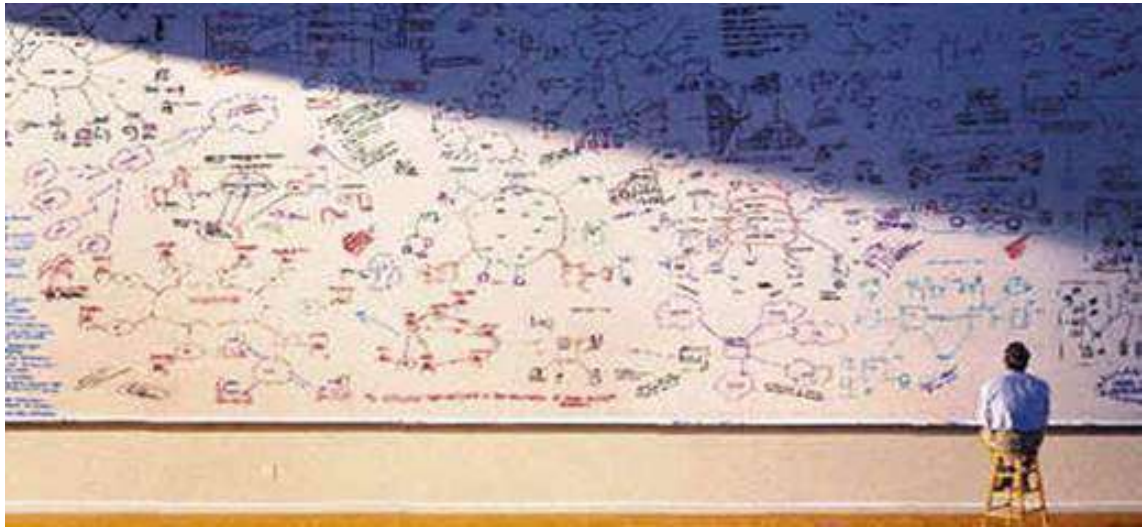
Viewing 1 to 3000 of 8802 APIs

Previous 1 2 3 Next

API	Description	Category	Updated
The Global Proteome Machine	Proteome data for biomedical research	Science	2012-12-17
#blue	Text messaging storage service	Messaging	2011-04-23
#Gah People	FreeNode IRC channel user-finding service	Social	2013-02-01
.NET Daily Fact	.NET daily fact widget	Internet	2012-01-09
.tel	Access to .tel DNS	Internet	2010-04-30
100 Facts About Me	Fact sharing service	Social	2011-08-19
10x10	Photo and news analysis service	Photos	2010-12-08
11870	Spanish bookmarking and directory service	Search	2011-12-09
123 Shop Pro	Online shopping cart software	Shopping	2010-11-03
123Cloud ECP	Cloud Platform	Storage	2012-12-28
12seconds.tv	12-second videoblogging	Video	2008-08-21
140 Proof	Twitter advertising service	Advertising	2011-01-12
18amail	Email marketing service	Email	2010-01-18
1DayLater	Business expense tracking tool	Enterprise	2010-02-07
2-WaySMS	SMS messaging service	Messaging	2010-12-07
2011 International Computational Billiards Championships	Computational billiards competition	Sports	2011-06-20

Wait a little before you enable APIs!!!

- Myths vs. Reality:
- Myth: I should enable my internet API to the "market developer"
- Reality: The internal\standard API's probably will be too fine-grained, too confusing and too complex to the "market developer"
- Reality: Companies should hire a product manager for defining the APIs



Source: http://blog.themistrading.com/are-our-markets-too-complex-you-versus-we/

STKI Summit 2014 Frame tale:

Although I did not meet with every department yet I feel that a "**unified delivery model**" is missing

STKI Summit 2014 Frame tale: Basic Delivery Model

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In delivery we have… and we do…

Srouce: http://depositphotos.com/6410289/stock-photo-Handyman-or-worker-involved-in-different-activities.html

Source http://abduzeedo.com/things-neatly-organized

We do activities (operations) on the things:

Install, delete, copy, config

We have Things:

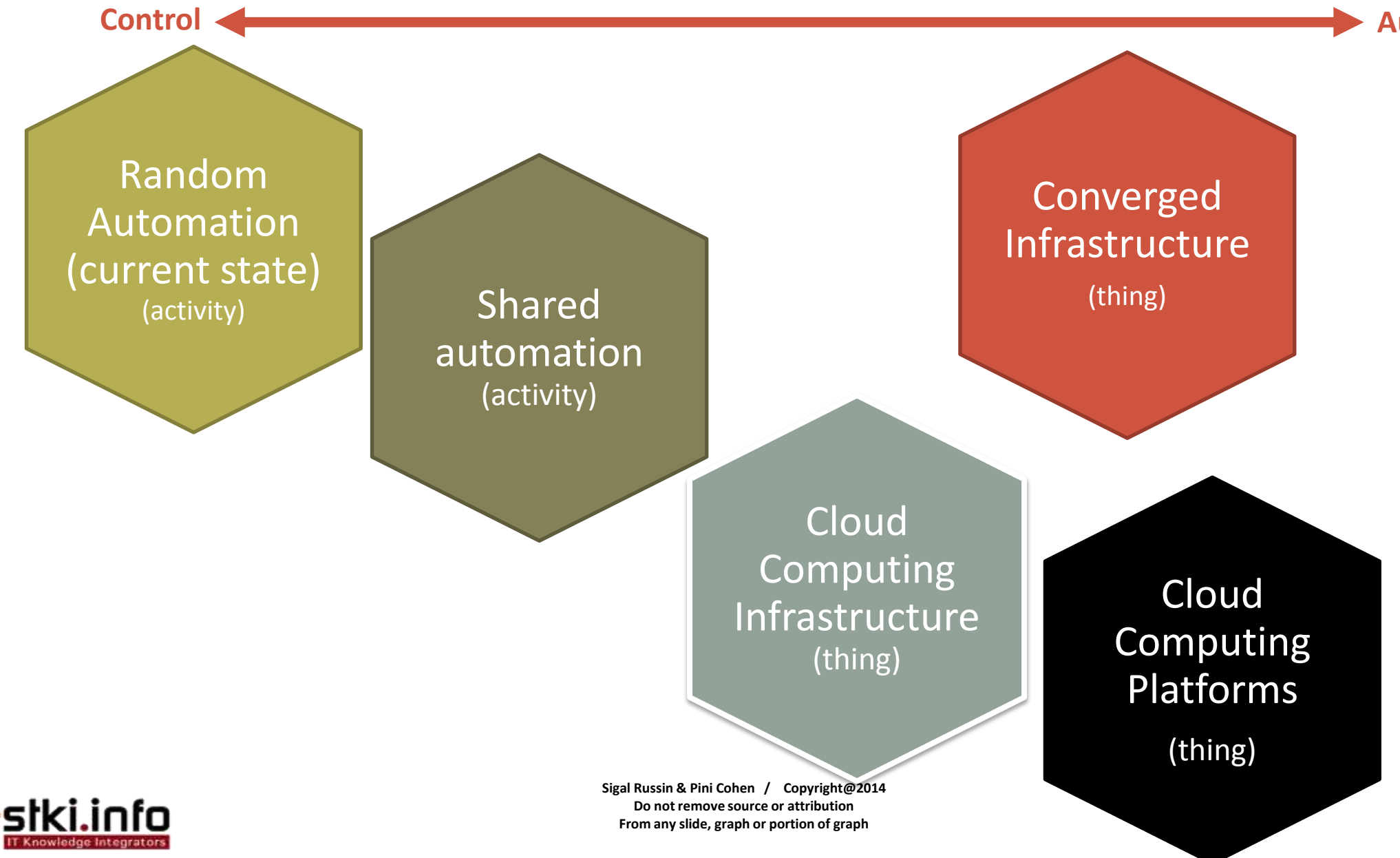
disk, server, DBMS, App server code, dll

How can we make our life better?

- Do the activities\operations better
- Have better Things
  - Have things that have embedded activities\operations

Source :http://www.schule-bw.de/unterricht/faecher/englisch/hauptschule/online-exercises/wortschatz/outdoor-activities.htm

IT delivery department "operational model" options



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IT delivery department "operational model" options

Control ⟵ ⟶ Automation

The Current State- each team has its own scripts and methodologies

Random Scripts

Engineered Proprietary Systems (Appliances)

Appliances ("thing")

Infra (Puppet, Chef) and Application (Nolio, Urbancode) deployment\automation tools

Shared Automation Tools ("activities")

Infrastructure Cloud (Openstack, BMC, HP, CA, Amazon, Google, etc.)

Cloud Infrastructure ("thing")

Applications Development Cloud Platform (Cloud Founhdry, Openshift. Etc.)

Cloud Platform ("thing")

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Theoretically, you can deploy these operational models everywhere

Control ⟵ ⟶ Automation

Enterprise

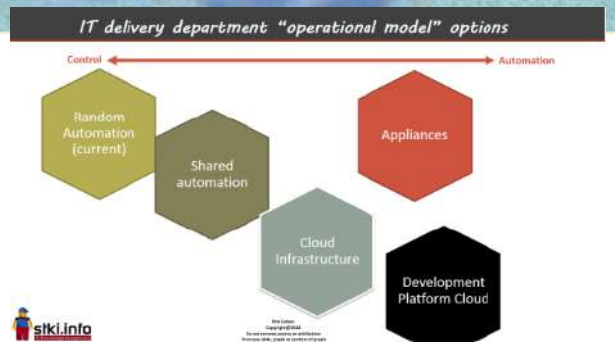
Traditional Enterprise IT

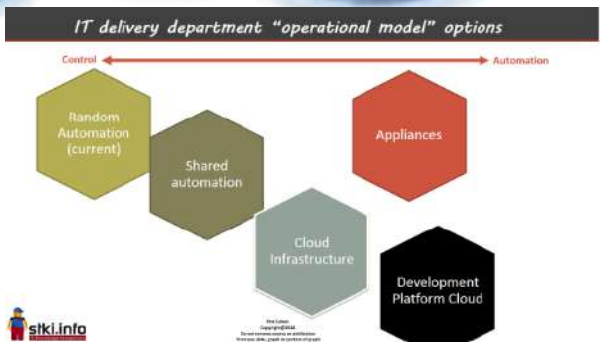
Private Cloud

Hybrid Cloud

Public Clouds

amazon web services™





Source: IBM Market Insights, *Cloud Computing Research*, July 2009. STKI modifications

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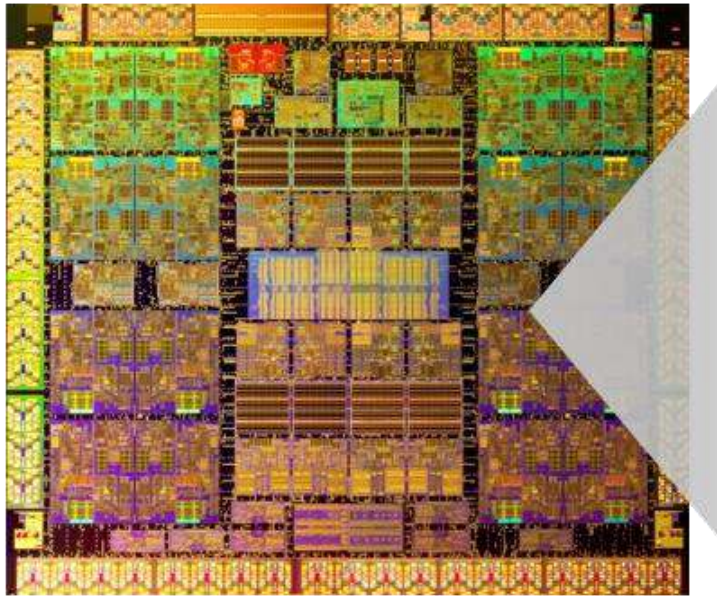
Converged Infrastructure= Extreme IT

NUTANIX

CISCO NetApp FlexPod

Moving Oracle Database & Java Software Functions into Hardware



Software in Silicon

- Database query acceleration
- Java acceleration
- Application data protection
- Data decompression

You can't have "software on silicon" on commodity HW….

ORACLE

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From any slide, graph or portion of graph

Converged Infrastructure = Extreme IT

- Appliances promise:
  - Easy to Install\maintain
  - Better performance
  - Less down time (planned\unplanned)
  - Predictable and smooth growth
  - Lower TCO is claimed
- However:
  - Entry\upgrade cost could be high
  - The appliance can be rigid (you can't install everything)
  - Vendor Lock-In situation
  - Internal politics should be resolved before (network vs. storage vs. system)

Converged Infrastructure are viable option but will not be the main stream delivery model in the next 2-3 years

Shared Deployment\ Automation \Config· Mng· tools

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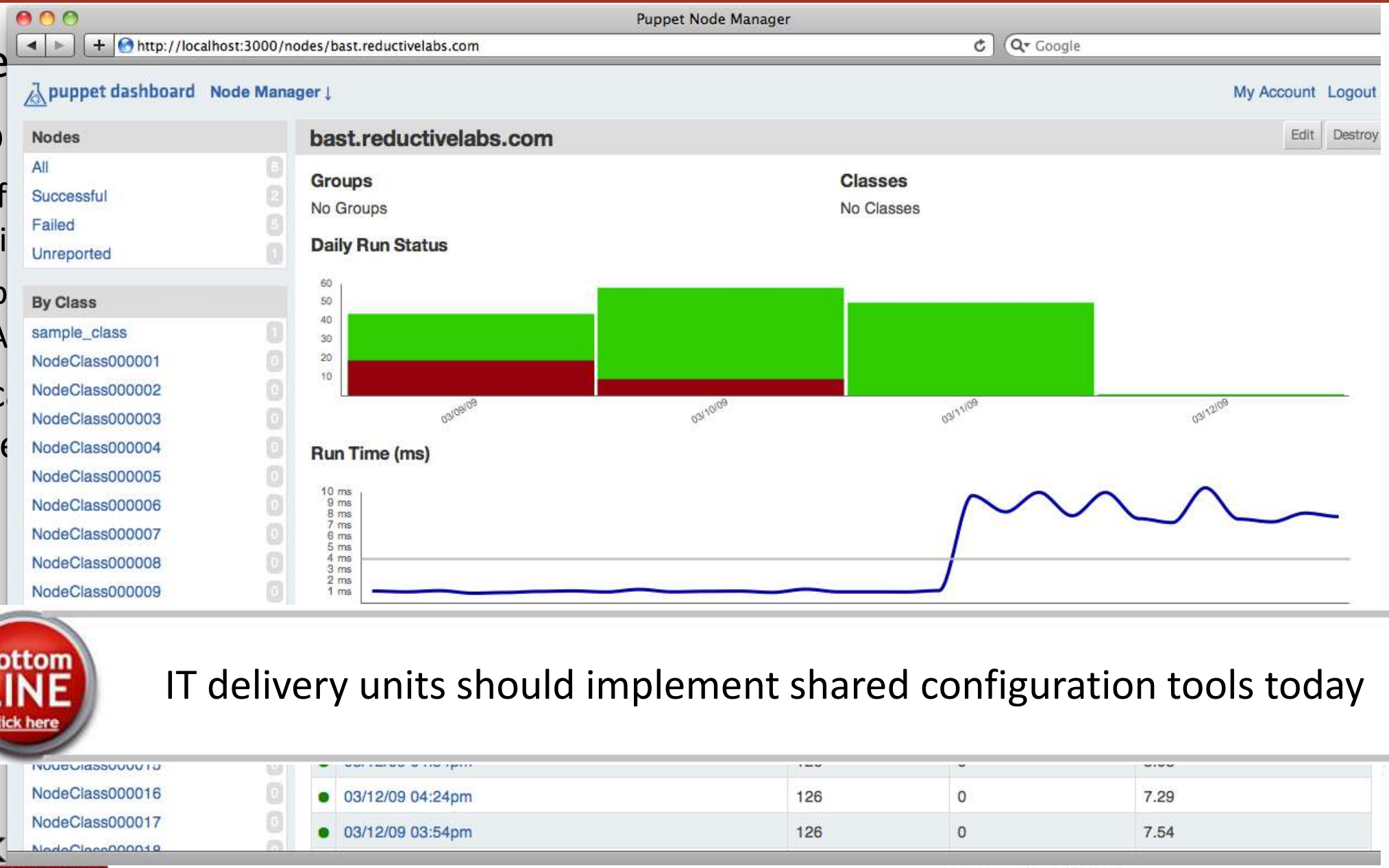
    CA
- Basic
  the re



ITier

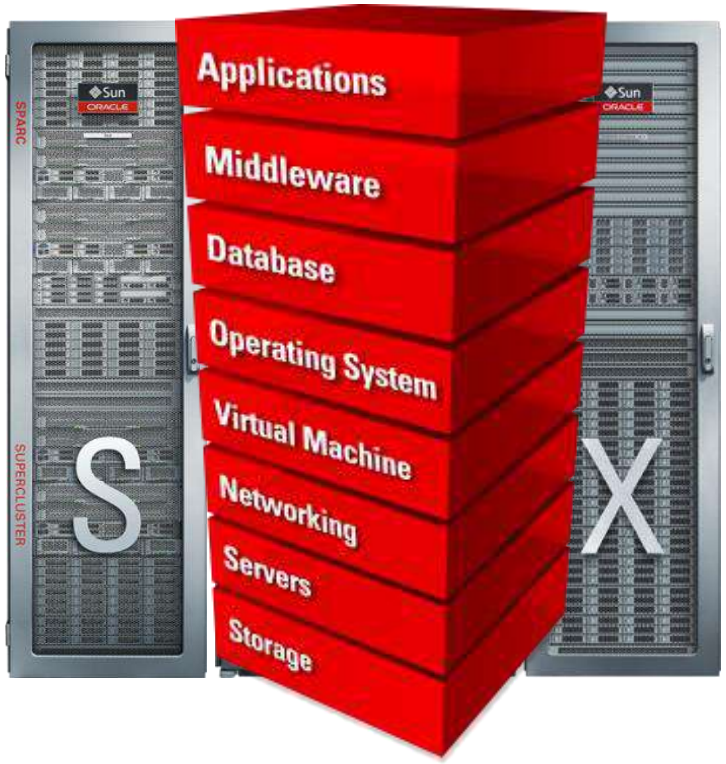
10

SmartFrog
BCFG

IT delivery units should implement shared configuration tools today

Hardware and Software Engineered to Work Together

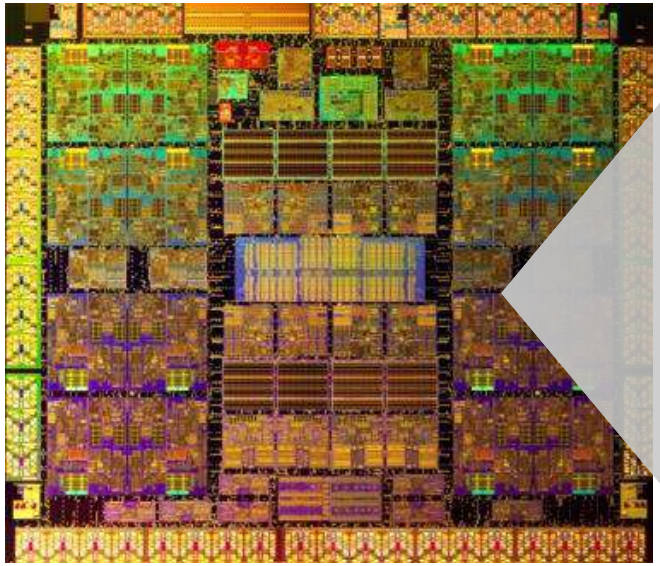
One Engineering Team



VS

The Ultimate Software Optimization: Hardware

Moving Oracle Database & Java Software Functions into Hardware



ORACLE

Software in Silicon

- Database query acceleration
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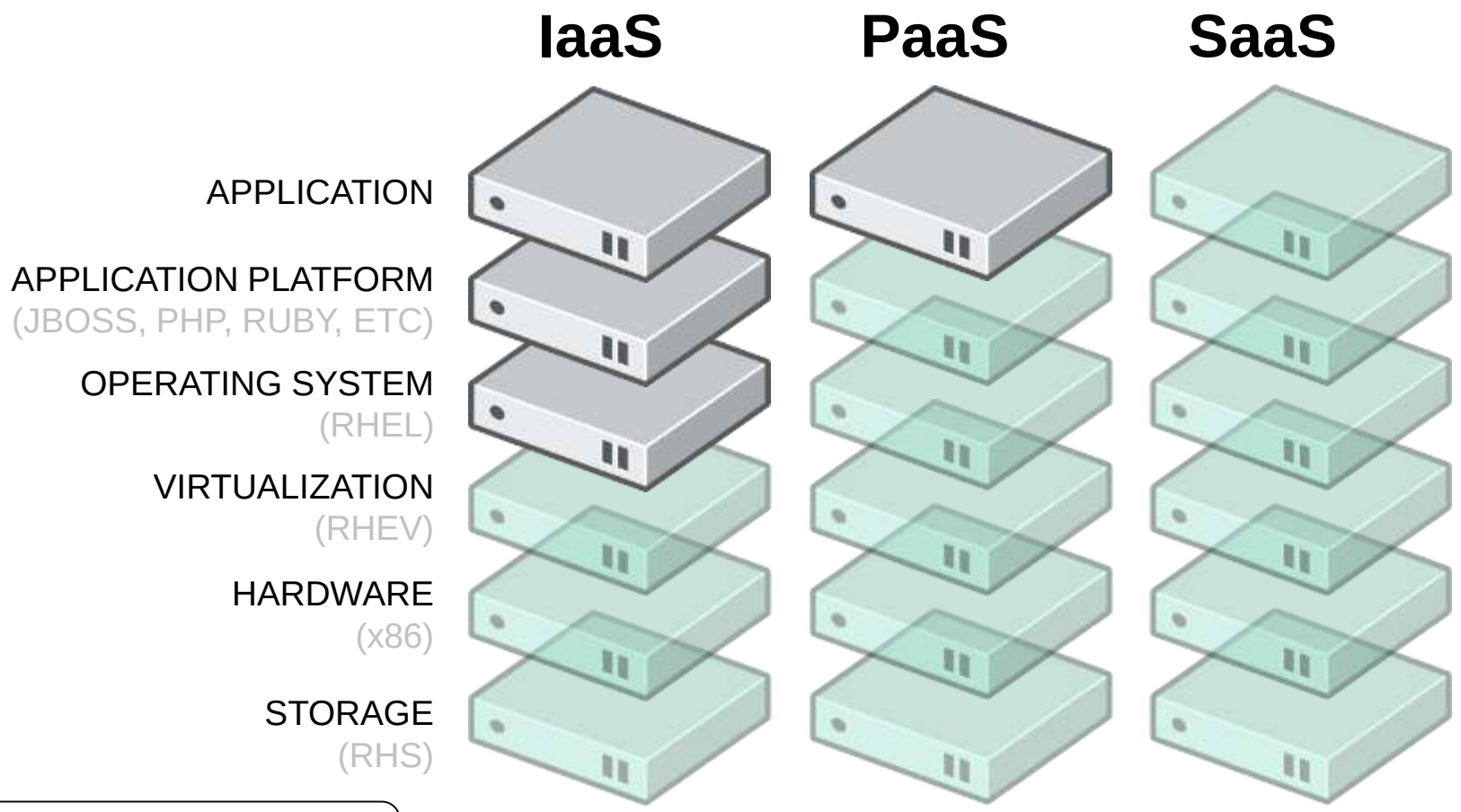
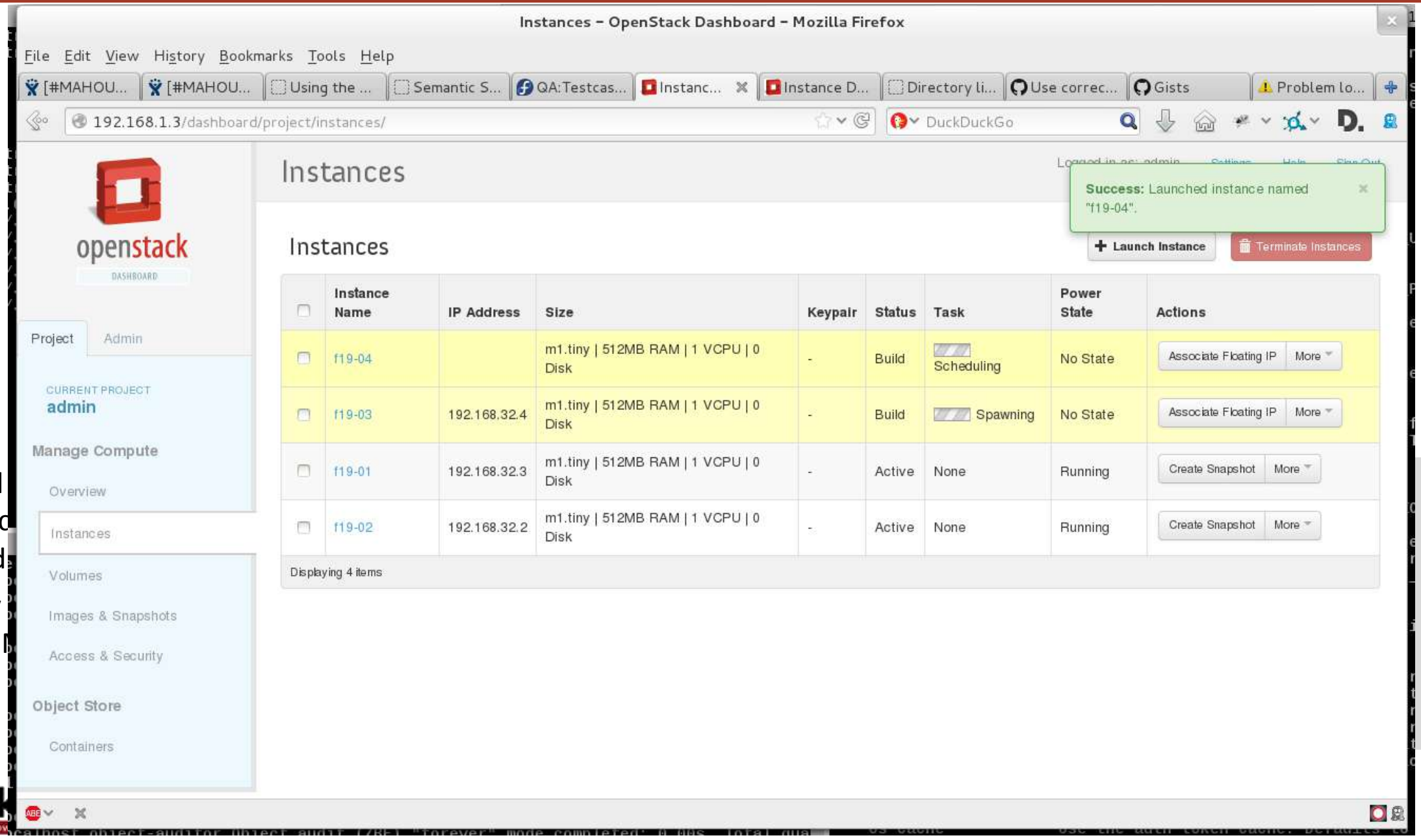
What is "cloud" good for?



Source: redhat

Cloud Computing Infrastructure: Openstack basic architecture



Cloud
elastic
based
Many
HP, IB

Is Infra cloud\IaaS the best thing we can have?

Craftwork

Assembly Line

Physical

How to Build an App:

1. Have Idea
2. Get Budget
3. Submit hardware acquisition request
4. Wait
5. Get Hardware
6. Rack and Stack Hardware
7. Install Operating System
8. Install Operating System Patches/Fix-Packs
9. Create user Accounts
10. Deploy framework/appserver
11. Deploy testing tools
12. Test testing tools
13. Code
14. Configure Prod servers (and buy them if needed)
15. Push to Prod
16. Launch
17. Order more servers to meet demand
18. Wait…
19. Deploy new servers
20. Etc.

Virtualized

How to Build an App:

1. Have Idea
2. Get Budget
3. Submit VM Request request
4. Wait
5. Deploy framework/appserver
6. Deploy testing tools
7. Test testing tools
8. Code
9. Configure Prod VMs
10. Push to Prod
11. Launch
12. Request More Prod VMs to meet demand
13. Wait
14. Deploy app to new VMs
15. Etc.

With PaaS

How to Build an App:

1. **Have Idea**
2. **Get Budget**
3. **Code**
4. **Test**
5. **Launch**
6. **Automatically Scale**

*"The use of Platform-as-a-Service technologies will enable IT organizations to become more agile and more responsive to the business needs." –Gartner**

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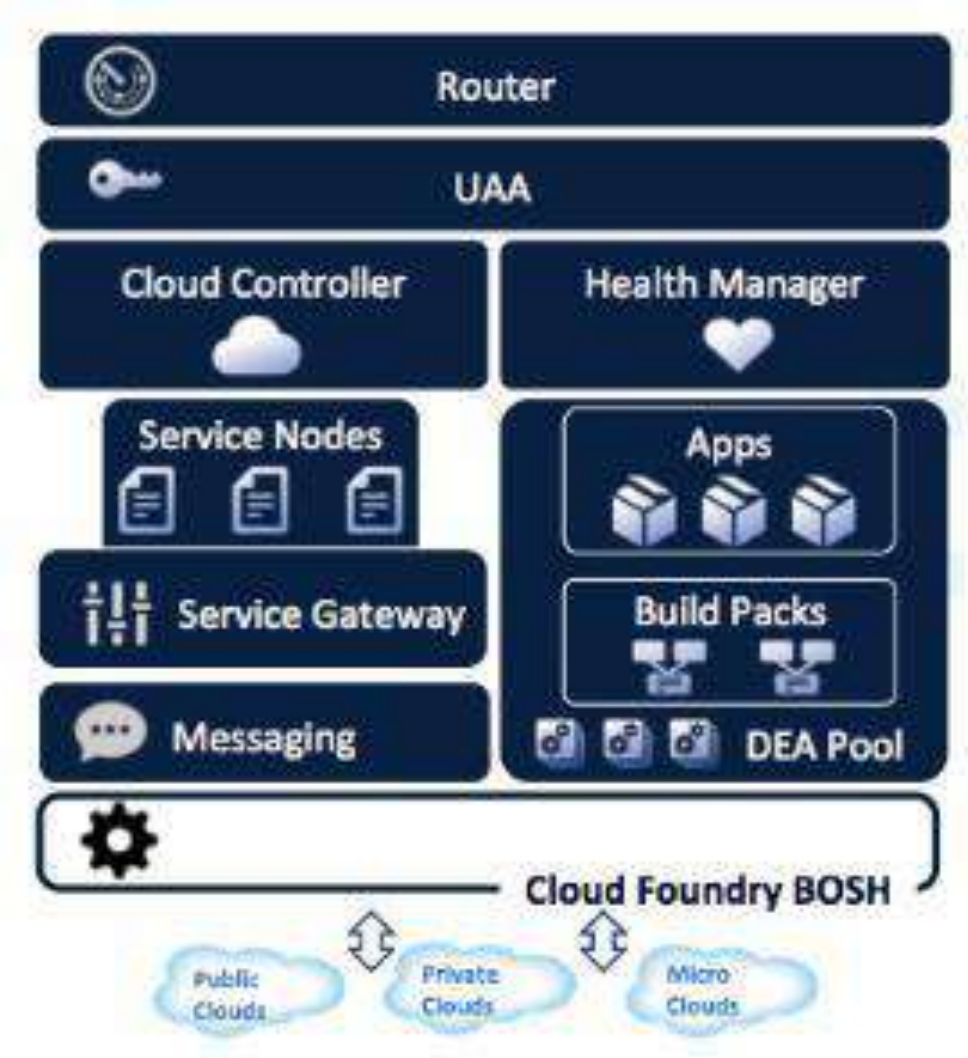
Srouce: redhat

Cloud computing platforms - What's the big deal?!

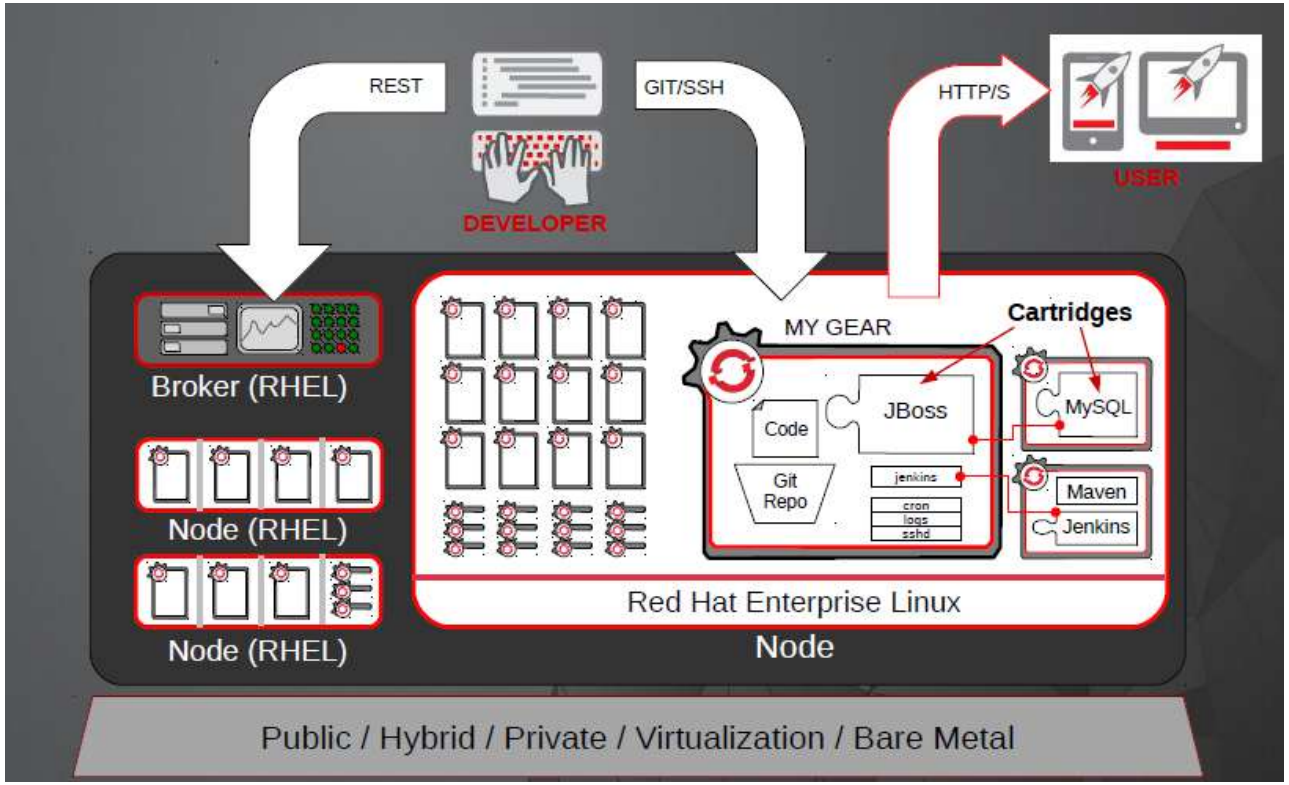
- Basically, enables the developer to just write a (portable) code. Comes with built in "things" and "processes".
- Can be deployed either in private or in public clouds
- Might consume services from Cloud Infrastructure (typical VSPHERE, Openstack, AWS).
- Mostly the basic entity relys on Containers (on Hypervisor)



Source: cloud foundry

Cloud computing platforms\continued

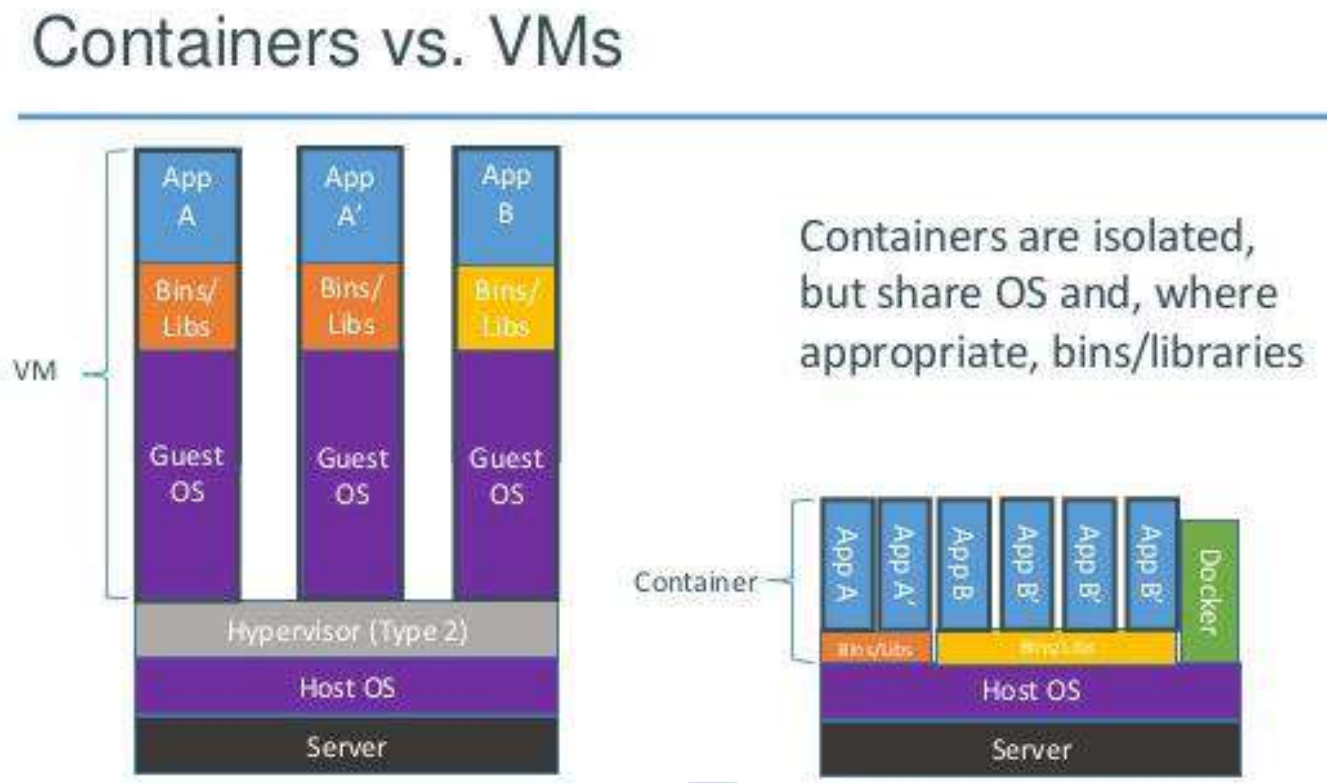
- Comes with ready made services (DBMS, messaging, source control module, monitoring, etc.)
- Users \3rd party can add more services
  - Services are integrated to the platform (example – if I add "Oracle" to PaaS I don't to write manually "create data source")
- With minor updates of services (either basic or added by user\3rd party) applications are just restarted to get the new service version
- Comes with pre-build processes Dev (source control, continuous integration) → Test → Deploy)
- Players mentioned: EMC (Cloud Foundry), Redhat (Openshift), Docker, IBM, Microsoft and many pure public offering (Salesforce\Heruku, Google app engine, Microsoft's Azure)



Source: openshift redhat

Docker – Linux containers for application delivery

- Traditional application deployment is "server=OS" based . For each application – new OS is needed
- Docker is an open-source engine that automates the deployment of any application as a lightweight, portab sufficient container that will run virtually anywhere.
- Docker containers can encapsulate any payload, and will run consistently on and between virtually any server.
- Not for production yet!



Source: http://lucabonesini.com/docker-open-source-project-pack-ship-run-application-lightweight-container/ stki modifications

The set of plugins included in the main (Openstack) Neutron distribution and supported by the Neutron community include (partial list):

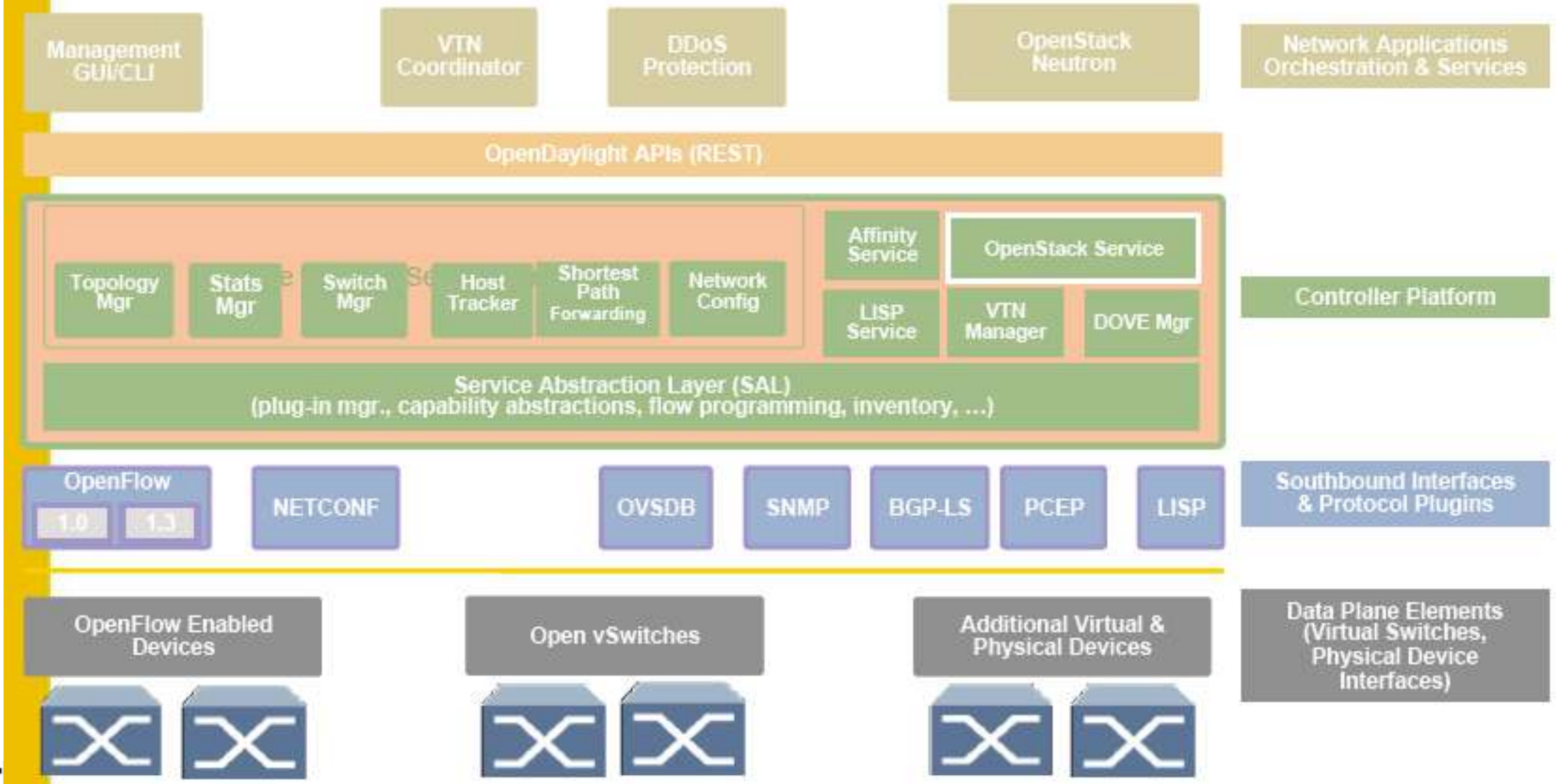
- Open vSwitch Plugin
- Cisco UCS/Nexus Plugin
- Nicira Network Virtualization Platform (NVP) Plugin
- Ryu OpenFlow Controller Plugin
- NEC OpenFlow Plugin

What is OpenDaylight

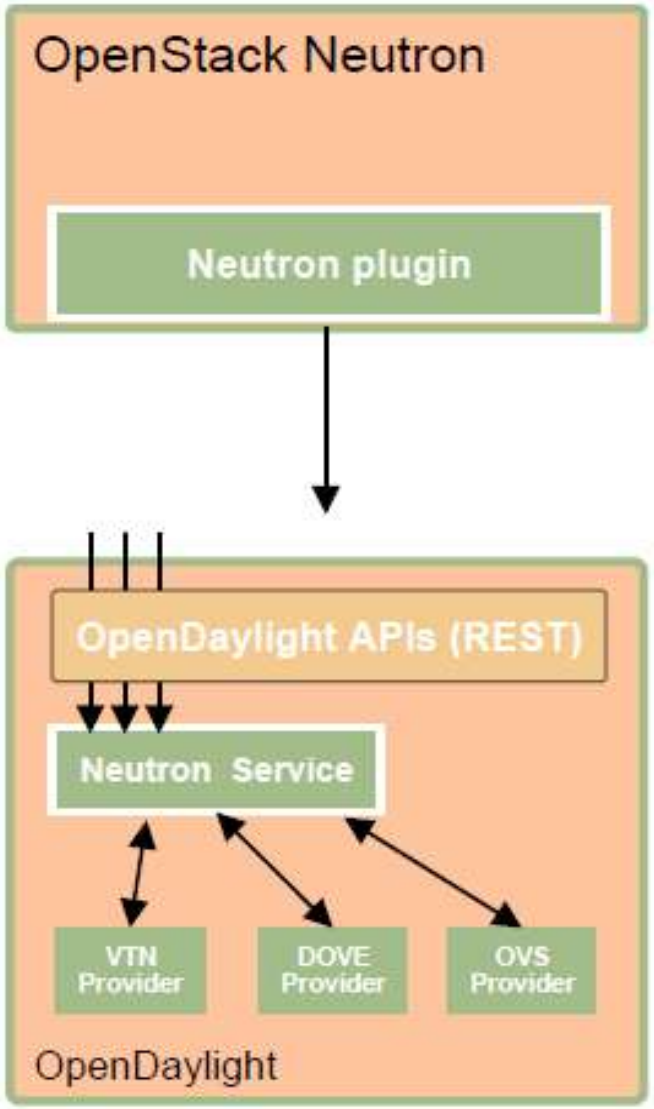
OpenDaylight is an **Open Source Software** project under the **Linux Foundation** with the goal of furthering the adoption and innovation of **Software Defined Networking (SDN)** through the creation of a common industry supported platform

Code	Acceptance	Community
To create a robust, extensible, open source code base that covers the major common components required to build an SDN solution	To get broad industry acceptance amongst vendors and users • using OpenDaylight code directly or through vendor products •Vendors using OpenDaylight code as part of commercial products	To have a thriving and growing technical community contributing to the code base, using the code in commercial products, and adding value above, below and around.

OPEN DAYLIGHT Hydrogen Release (Dec 2013)



OpenStack Integration



- OpenDaylight exposes a single common OpenStack Service Northbound
  - API exposed matches Neutron API precisely
  - multiple implementations of Neutron networks in OpenDaylight
- OpenDaylight OpenStack Neutron Plugin simply passes through
- simplifies OpenStack plugin
- pushes complexity to OpenDaylight

Platform and SDX wars example:

"OpenDaylight was formed by Cisco and IBM ….. to develop an open source OpenFlow controller…. But… OpenDaylight is a defensive maneuver to dampen the potential of OpenFlow and SDNs to usher in a "white-box" upheaval of network infrastructure as a virtualized commodity…. "

Source: http://www.networkworld.com/community/blog/cisco-ibm-defensive-opendaylight

Standards are evolving and (unfortunately…) FUD is part of the process

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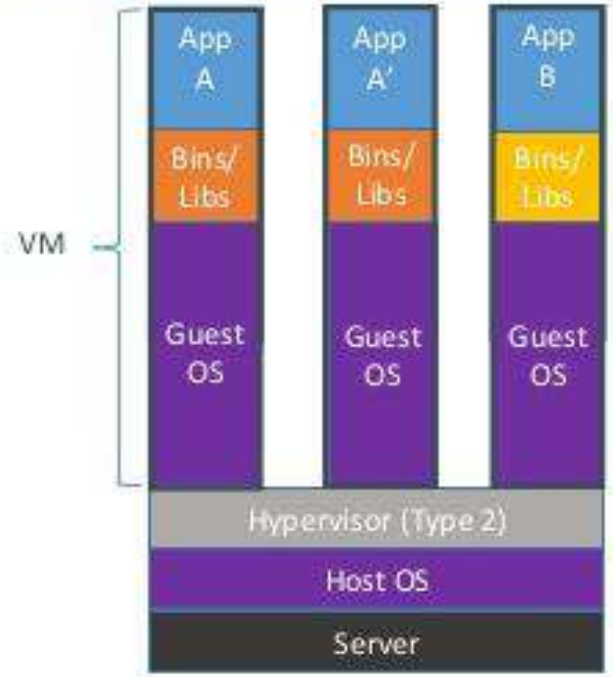
IBM cloudmix: Runtimes, Web & app svc, Mobile svc, Data mngmnt svc, Big data, DevOps, Integration

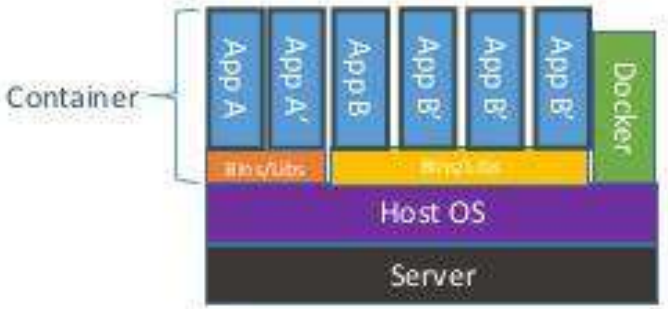
Containers vs. VMs

Microsoft

The C
modern



Containers are isolated, but share OS and, where appropriate, bins/libraries



empowers people-centric IT

enables modern apps

WINDOWS AZURE

bottom LINE click here

Cloud Computing Platfor ing and should be examined on

docker

DEVELOPMENT | MANAGEMENT | DATA | IDENTITY | VIRTUALIZATION

STKI Summit 2014 Frame tale: Other important roles and issues

IT procurement
Organization model
Legacy
BSM ITSM

"אלוהים נמצא בפרטים הקטנים..."

Source: http://www.shulitapiro.com/?projectid=3&PagingNum=0&Category=

To opensource or not to opensource

To Openso

:he question

- Australian Government (pr
  and software-as-a-service

er open source software

e.

Source: https://c.ymcdn.com/sites/www.aiia.com.au/resourc

צה"ל מתקרב לסטארט־אפים: יגדיל השימוש בקוד פתוח

כר הגידול העיקרי לאנשי טכנולוגיה בישראל מנסה לשנות תפישה ולאמץ שפות תכנות חדשניות: "בעוד כמה שנים יותר מ-50% מהמערכות בצה"ל ישתמשו בקוד פתוח", אומר מפקד היחידה הטכנולוגית למחשוב מבצעי

04.03.2014 | 07:24 | מאת: אור הירשאוגה | 13 | הוסף תגובה

באחד המחזורים הקרובים של בית הספר למקצועות המחשוב בצה"ל, ילמדו החניכים לתכנת בפייתון, אחת משפות התכנות המבוקשות ביותר כיום בסטארט־אפים בישראל ובעולם. זו תצטרף אל שפת תכנות נוספת שהדרישה לה גבוהה -Ruby on Rails - שתיהן שפות תכנות בקוד פתוח.

על אף שמדובר בשינוי מהותי ביחידות הטכנולוגיות בצה"ל, שידועות ככר גידול למתכנתים בעלי הכשרה טכנולוגית שמבוססת על תוכנה קניינית, הכנסתן של שפות תכנות אלה למערך הלימודים בבית הספר למקצועות המחשוב היא חלק ממהלך רחב הרבה יותר. לאחר עשורים שבהן התבסס צה"ל באופן כמעט בלעדי על חומרה ותוכנה קניינית, סדרת החלטות שהתקבלה באחרונה, הן בפורום מפקדי יחידות המחשוב והן ברמה המטכ"לית, מכניסה את צה"ל לעידן חדש בכל הנוגע לאימוץ קוד פתוח, סטנדרטים פתוחים ושפות תכנות חדשות.

מי שיחפש את הביטוי המובהק ביותר של שינויים אלו ימצא אותם ביוחנן - מערכת מחשוב

Is SaaS better or worse than Perpetual?

Perpetual

Service (rental)

Pay for what you use

Can sell the license when not needed

Ease of operations

Capex is better than Opex

Application is constantly updating

Can stop maintenance =less lock-in

Less customization

Source: http://centriclogicblog.files.wordpress.com/2013/01/accountants_are_not_boring.jpg

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SaaS deals are not better nor worse – just different!

Pre-Procurement Budget Approval Process

חטיבה דורש	סיווג	תיאור	ספק	מחיר/תעריף שעתי	עלות בדולר	כמות / כמות שע	סטאטוס	הערות- תיאור הפרויקט
משאבי אנוש		? חוזה						
חטיבת השירות		הדרכות בזמן פנוי						
משאבי אנוש		השקעות					חדש	
כספים		חוזה שירות למערכת						
משאבי אנוש		חוזה תחזוקה						
כספים		חומרה				1		
חטיבת		מסך מרכזי למנהל						

דף תקציב של ארגון X

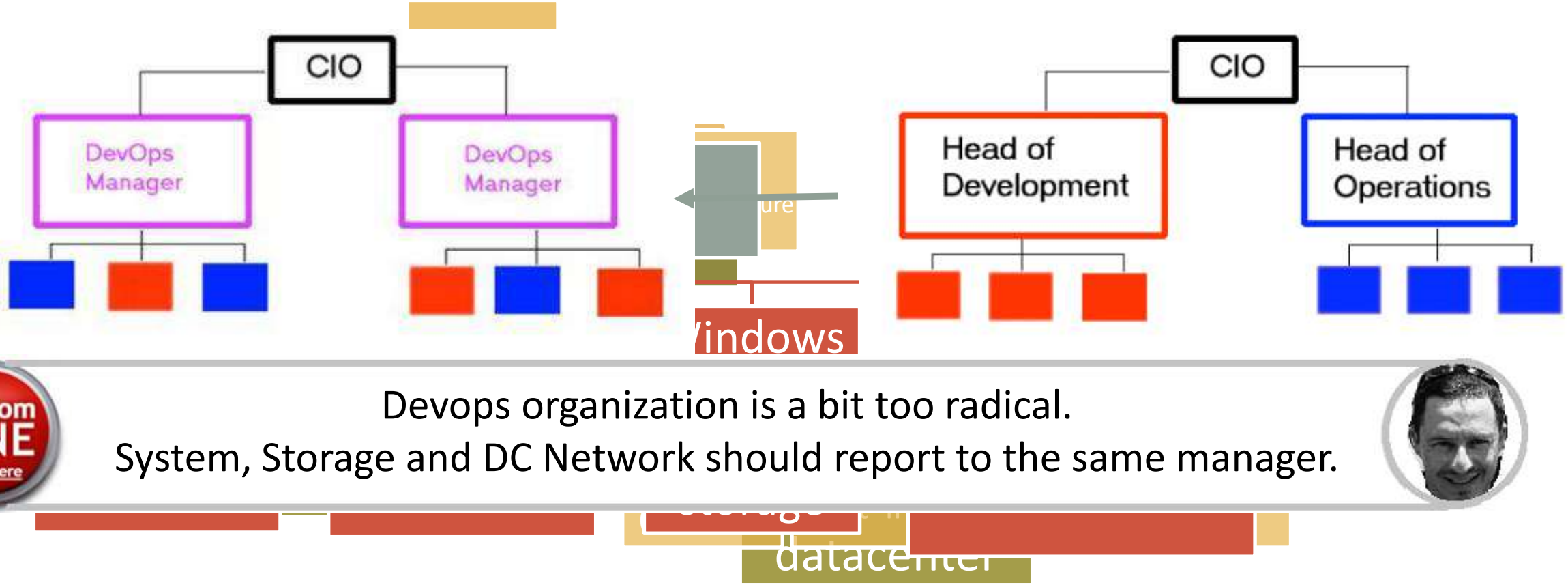
What is missing here?

The market experience achieved by deploying this budget request

How to organize the delivery department?

- Large variety of organization structures:

- Devops is pushing Delivery to a different organization structure!



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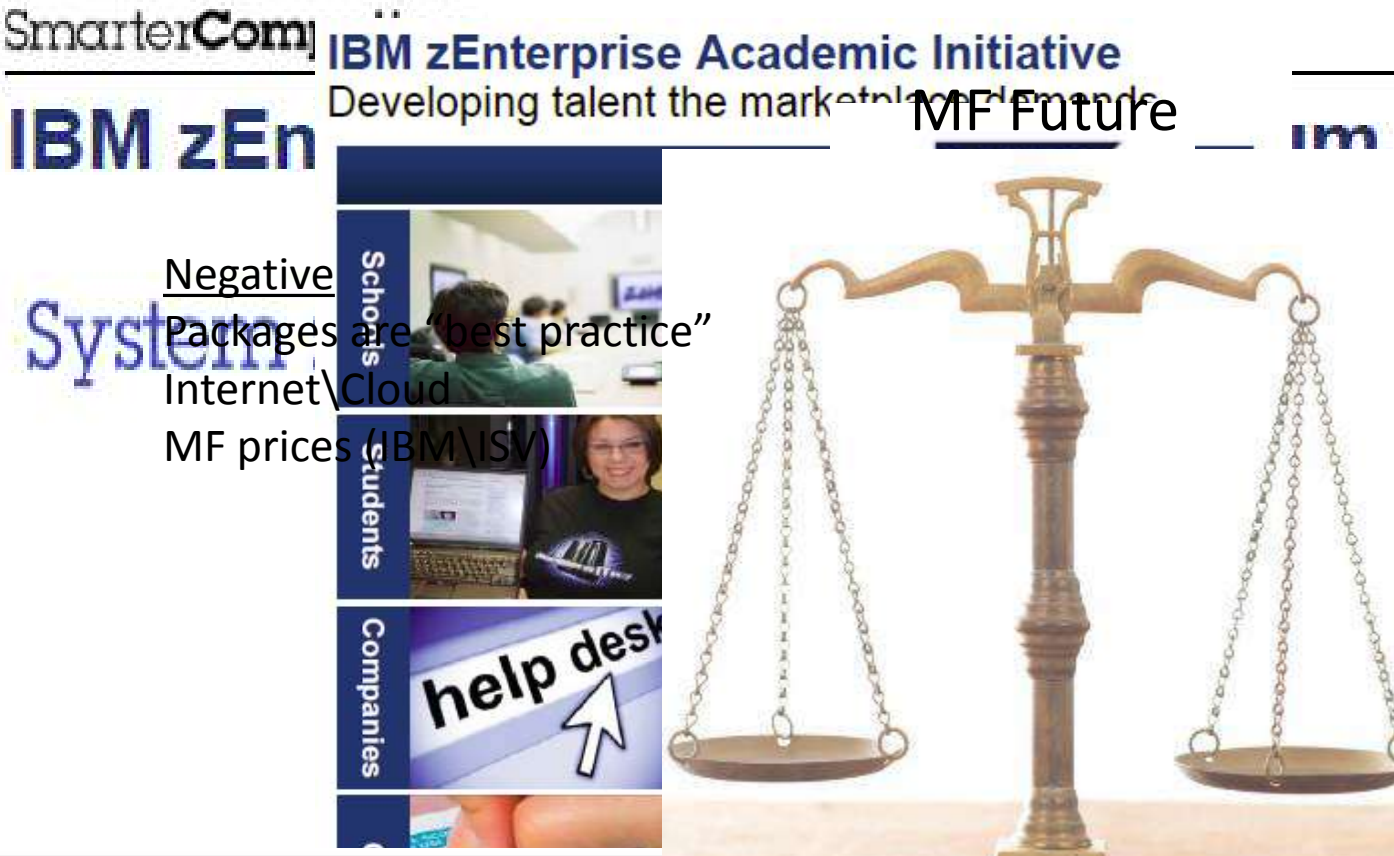
Devops organization is a bit too radical.
System, Storage and DC Network should report to the same manager.

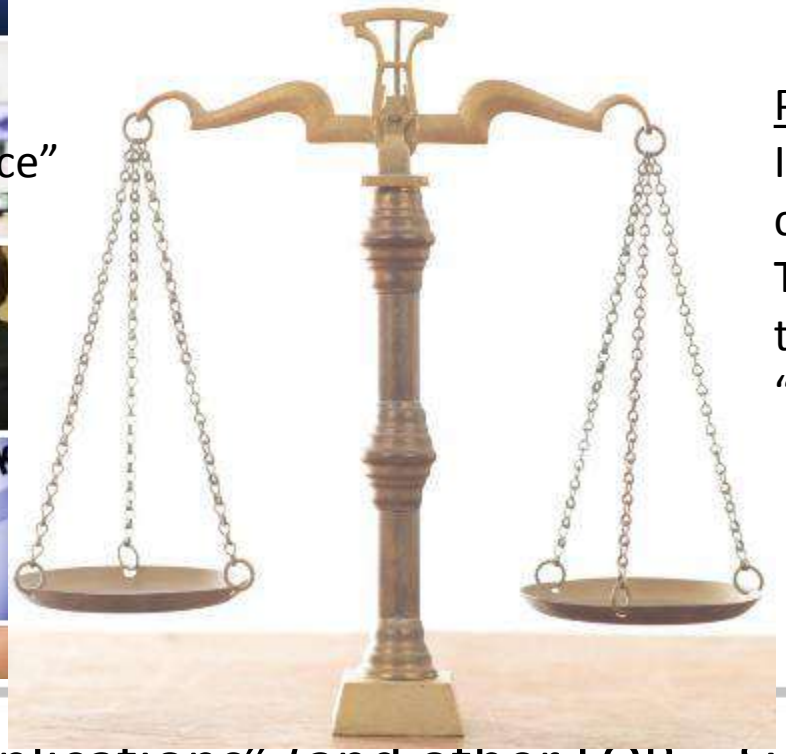
With organized teams, how do we keep legacy running?

- Wh

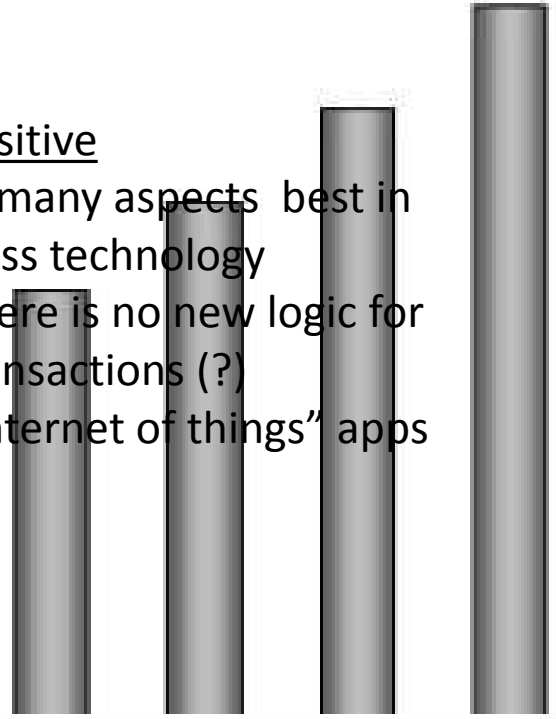


MF Future

Negative
Packages are "best practice"
Internet\Cloud
MF prices (IBM\ISV)



Positive
In many aspects best in class technology
There is no new logic for transactions (?)
"Internet of things" apps



Your "SAP" "Oracle Applications" (and other LOB – System of Records apps) will be legacy in 5 years!

MF TCO

BSM and ITSM trends

- Users expect to get (at least basic) BSM\CMDB from the platform clouds
- Even mature organizations sometimes forget the basic rule of BSM –**the monitoring team should be legitimate part of change management process!**
- From ITSM to Employee-SM (“air-condition is leaking” , “order pencils”, “order tickets for festigal”)

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STKI Summit 2014 Frame tale: Final words and summary

Lately "I was not happy" (corporate IT situation)

Is some

sers

Will corporate IT be the Last Dinosaur?!

IT vs. None

IT
Using PC
IT buys the PC
Communicating via Email
Social networks is just starting part of Organization strategy – within the marketing departme
Online and Batch applications
Using traditional voice and just VOIP
Either at Work or at Home

This year is "Good Vibrations Year"

- Continuous integration with **Jenkins. Agile** development projects.
- **Open source code** in governmental projects. **Hadoop, NoSQL** initial projects.
- Users deploy CRM and other strategic application in **SaaS.** Corporate sites at **Azure. Email at 365 and Google.**
- Develop web apps in **php, python.** Users consider **Puppet, Chef, Openstack.**

Not in all organization. Not in all areas. But still, organizations starting to embrace contemporary technologies and processes!

The market is changing – Integrators \ Vendors perspective

- Vendors are selling directly. Cloud vendors sell directly (no integrators are needed).
- Products are more mature- less knowledge is needed
- Strong IT divisions that can “fight” the vendors\integrators
- Products are commoditizing faster - HW margins are much smaller - Highly competitive market

Integrators, the “middle man”, feel the increasing pressure

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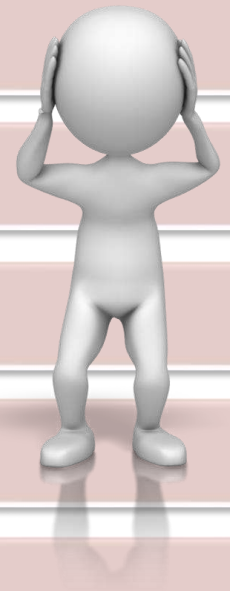
The current "kings" are threatened

CISCO	• SDN – Openflow , Nicira
Microsoft	• Mobile market share • Traction of startups and cloud providers
HP	• Lower margins in printers, servers, PC
VMWARE	• Open source alternatives – Openstack
Oracle	• NoSQL\Hadoop • Cloud \SaaS
Monitoring vendors (CA BMC HP IBM)	• Monitoring is provided by platforms (cloud, PaaS, etc.)
Storage vendors (EMC NETAPP, etc.)	• Publick Cloud • Software Defined Storage • NoSQL\Hadoop
Redhat	• Centos



Please check yourself

Development	• If you do not develop web application with modern languages – php python ruby on rails
Data	• If you have not explored Hadoop\NoSQL
Infrastructure	• If you have not started to deploy devop tools.
Development	• If you are not deploying continuous integration
Development	• If you are not developing agile to some extent
Cloud	• Have something in public cloud (take things from DMZ)
Organization	• If you are not able to measure network DC-storage-server as a whole

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Please check yourself

Security	• If you do not ready for cyber attacks (forensic tools, DLP, APT tools etc.)
IAM	• If you have not used identity management to control your employees permissions.
Networking	• If you have not started to explore SDN with applications.
UC&C	• If you are not deploying unified communication (VOIP+Video+Chat)
3D Printing	• If you are don't know how this trend can help your business grow.

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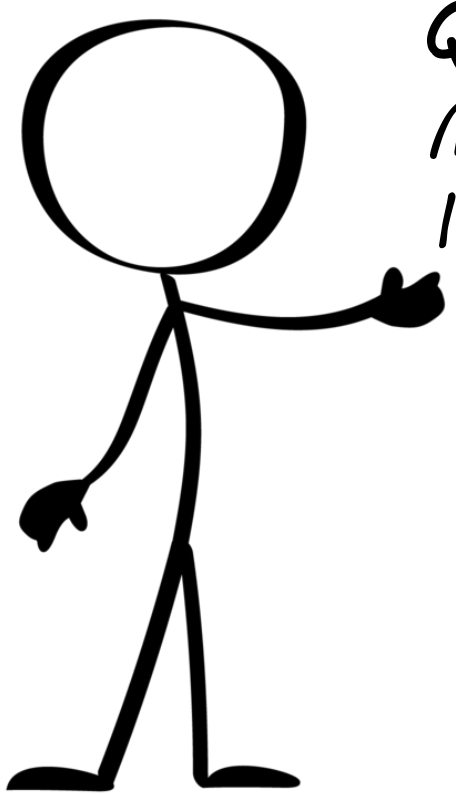
STKI Summit 2014 Frame tale:

Got it.
Let's do it!

Thank you!



Questions?
More Information?

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