"Sustaining Innovation for Smarter Computing in Data Centers“

The IT infrastructure that powers a Smarter Planet

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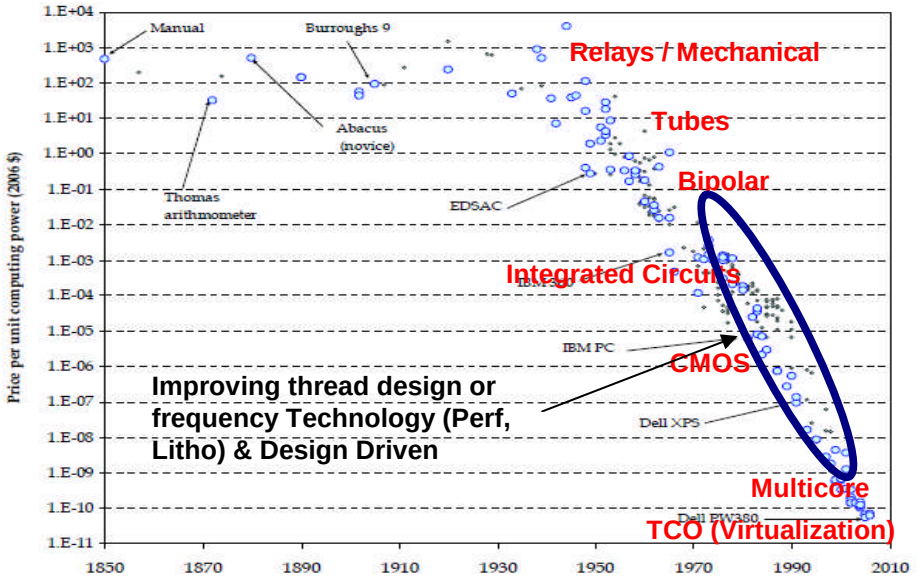
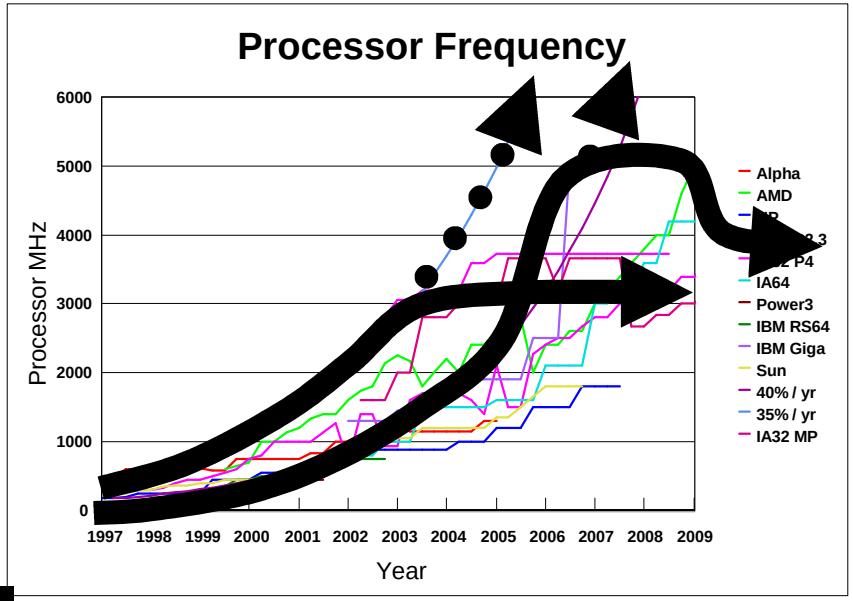
Agenda

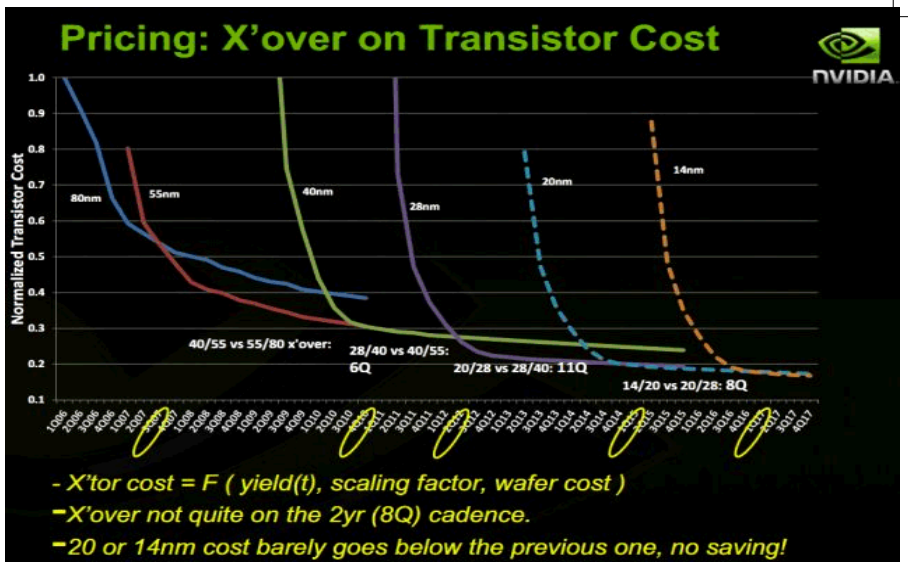
- What's changing in Technology Innovation and how does it affect Clients?
- Where are Clients looking for value today?
- How Smarter Computing is the new driving factor in value?

History of Computing 50%/year Cost/Perf Takedown has slowed



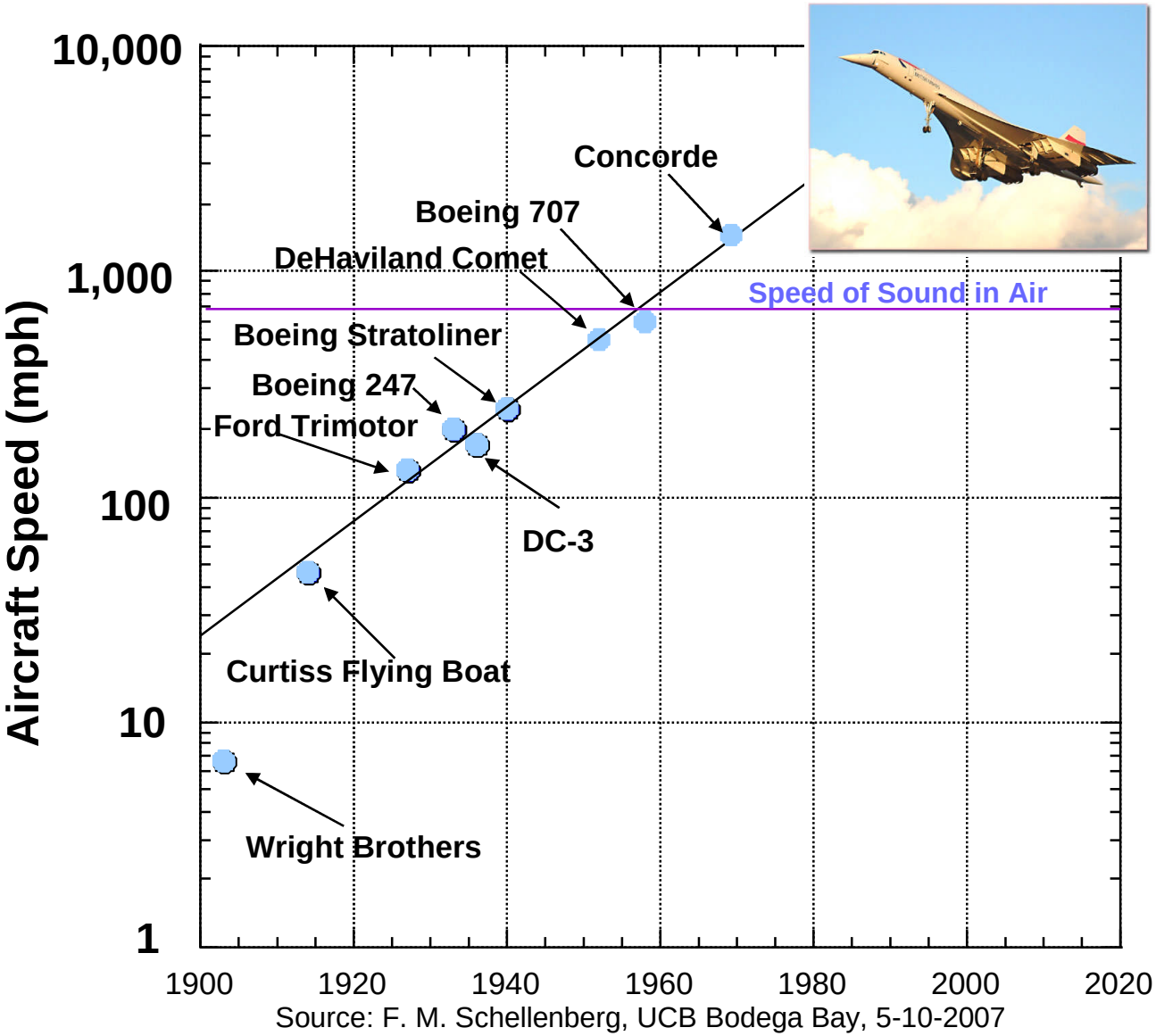
Frequency has hit a plateau





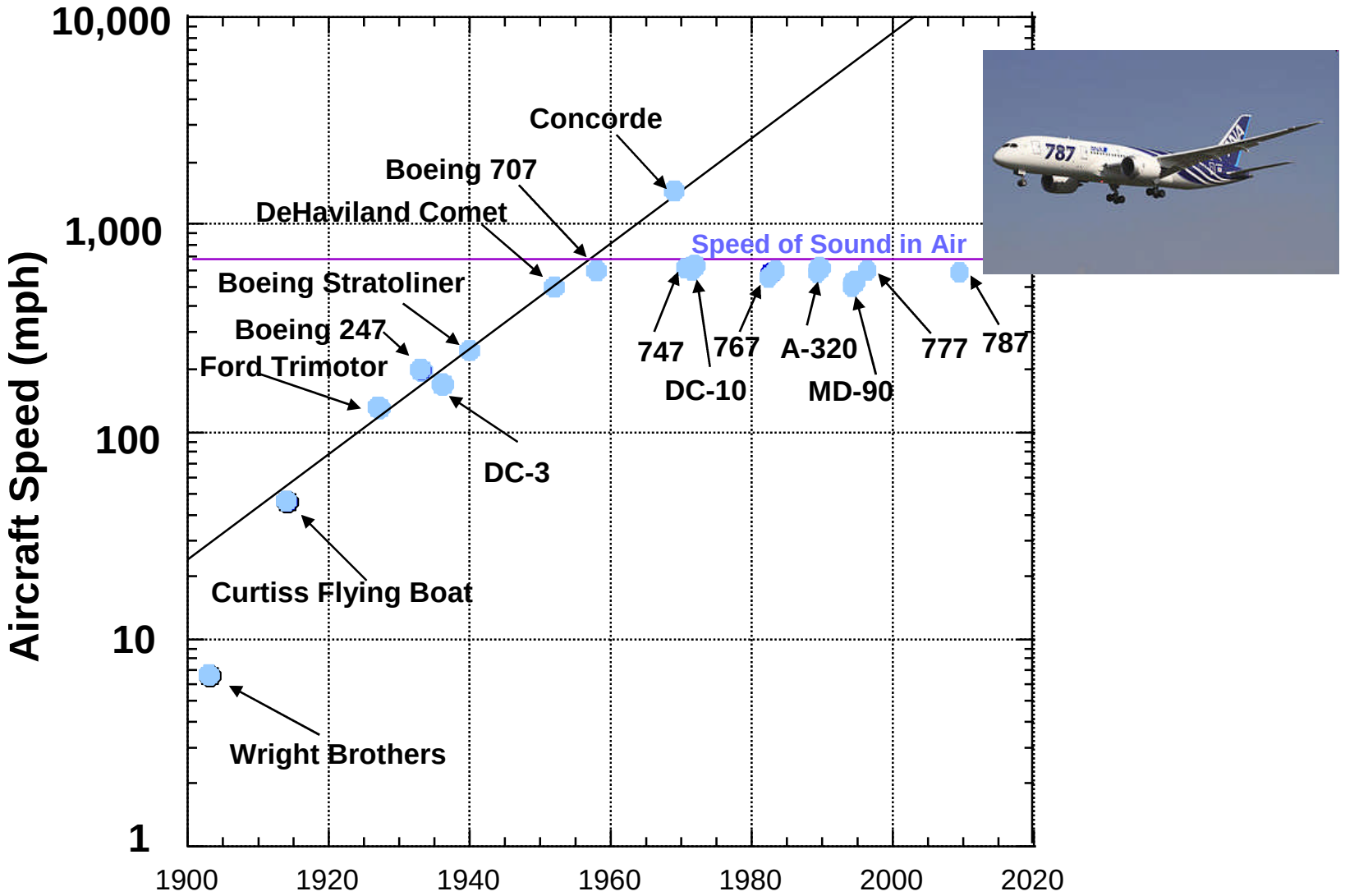
Technology Cost reduction is flattening out

An Example: Development of Commercial Aviation



Source: F. M. Schellenberg, UCB Bodega Bay, 5-10-2007

Cost of Speed gave way to Efficiency and Flexibility



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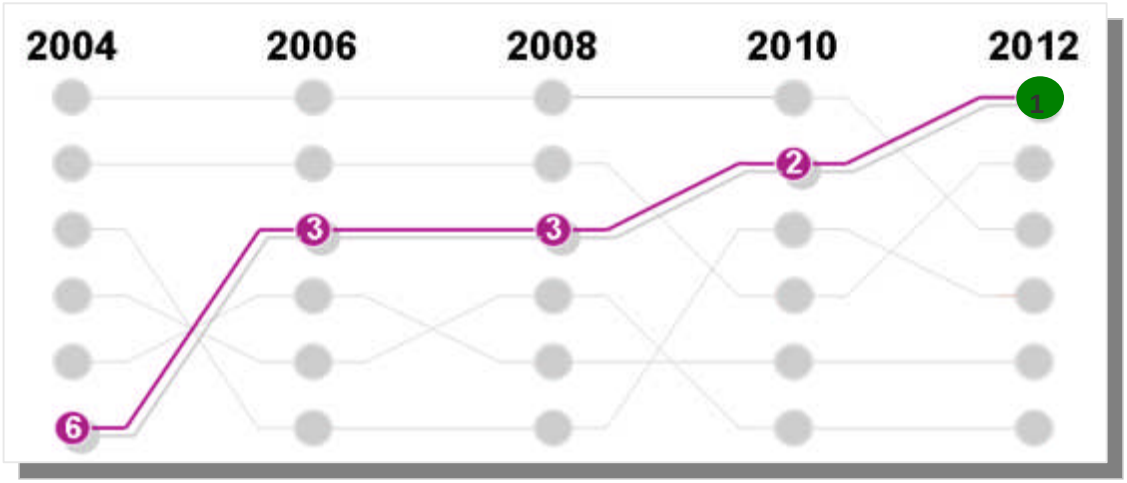
For the first time, CEOs identify technology as the most important external force impacting their organizations



Factors impacting organizations:

1. **Technology factors**
2. People skills
3. Market factors
4. Macro-economic factors
5. Regulatory concerns
6. Globalization

Source: IBM CEO Study 2012

Speed
Value

90%

view cloud as critical to their plans

Extended Reach

1Billion

Smartphones and 1.2 billion mobile employees by 2014

Responsiveness

20B+

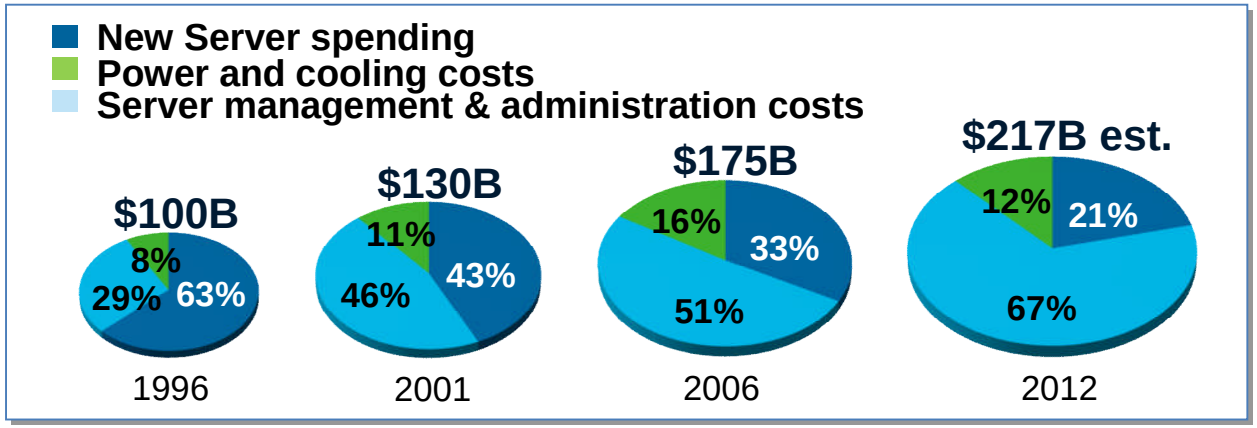
Intelligent business assets

New Insights

2.7ZB

of digital content in 2012, up 50% from 2011

What is Driving IT cost and value today?



IT costs have escalated and **shifted to labor.**

Speed Value

view cloud as critical to their plans

Extended Reach

Smartphones and 1.2 billion mobile employees by 2014

Responsiveness

Intelligent business assets

New Insights

of digital content in 2012, up 50% from 2011

Efficiency & Cost Control

Simplification & Automation

Security & Compliance

So cost, complexity and risk are driving the future of IT

Cost

70% of IT budget is devoted to operations and maintenance[1]

Complexity

22B connected devices by 2020[2] & **8 zettabytes** of digital content by 2015[3]

Risk

Through 2016, the financial impact of cybercrime will grow **10%** per year [4]

1 IDC, Analyst Matt Eastwood, IDC Directions Presentation, 2011.
2 Forrester, BT 2020: To Thrive In The Empowered Era, You'll Need Software, Software Everywhere, January 30, 2012.
3 IDC Predictions 2012: Competing for 2020.
4 Gartner Reveals Top Predictions for IT Organizations and Users for 2012 and Beyond, 2011.

We believe there's a better way to design, build and manage IT infrastructure to power a smarter planet

A **Smarter Computing** approach is…

Efficient…

by Leveraging Cloud to speed time to market and improve efficiency

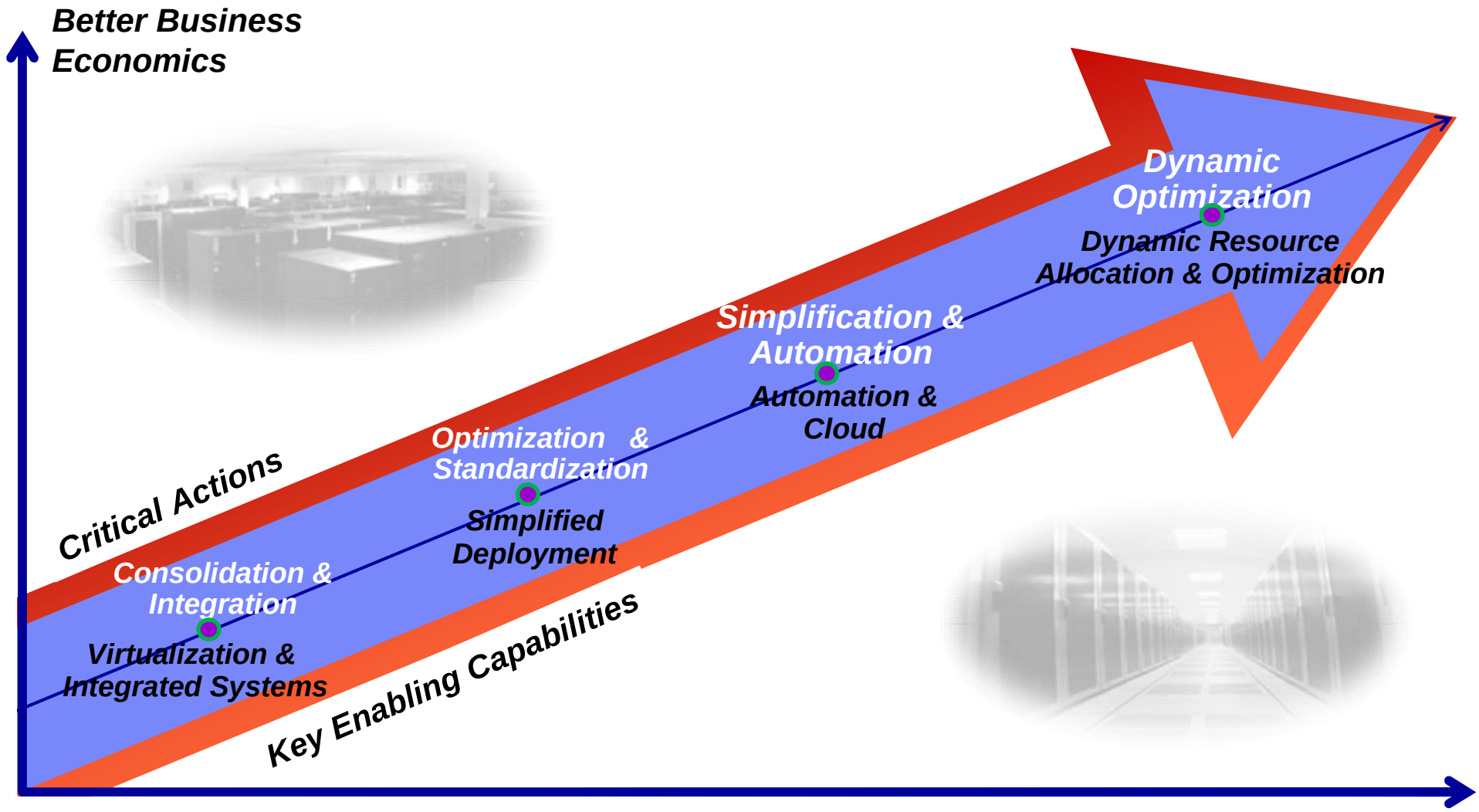
Responsive…

by Unlocking the Power of Big Data to deliver more actionable insight

Safe…

by Securing Critical Information to protect and reduce risk

What is driving IT going forward?



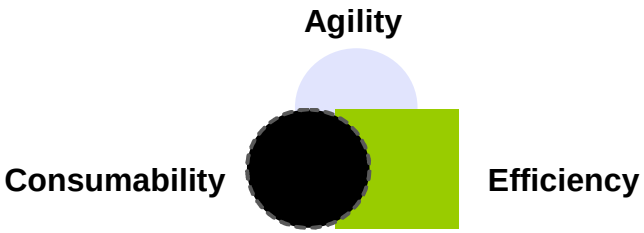
Software Defined Environments

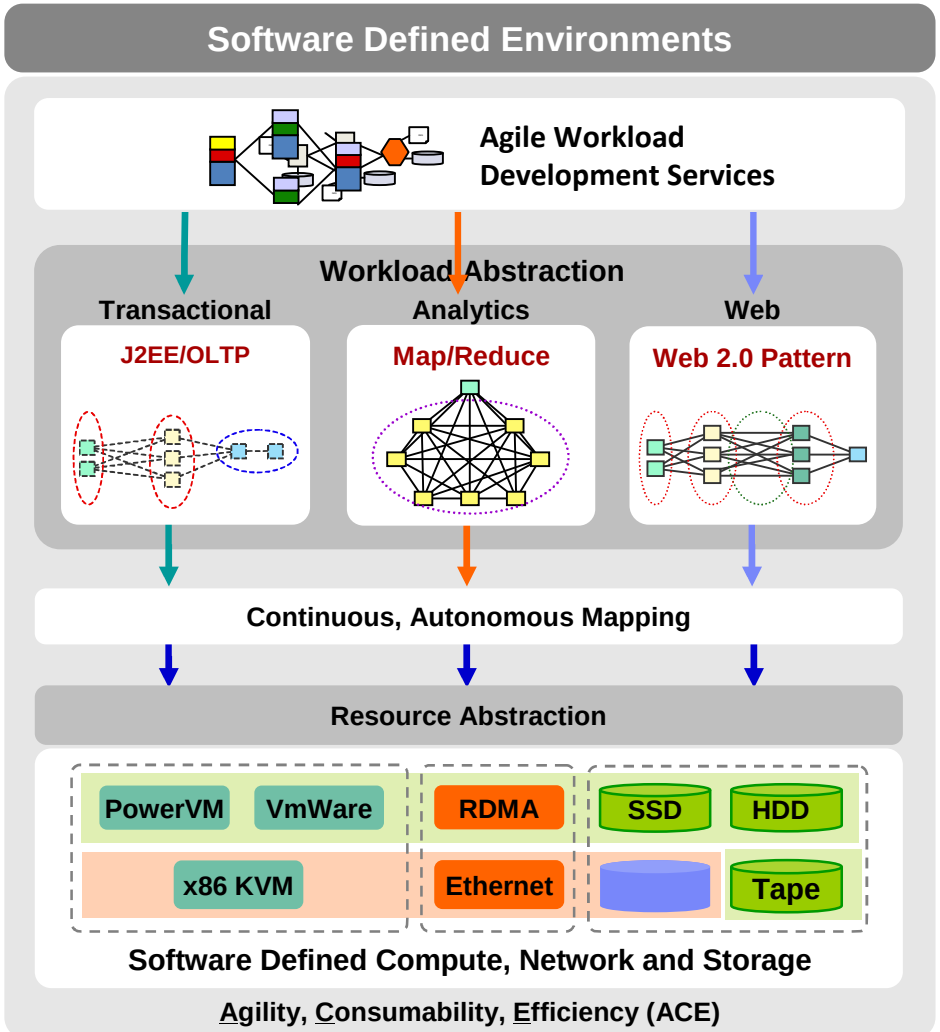
Workload Abstraction
Based on pattern and
functional and non-functional requirements

Resource Abstraction
Semantically rich abstractions of heterogeneous resource capabilities and system components

Mapping to resource
Map requirements to potential system architectures. Proactively orchestrate infrastructure and workload

Continuous Optimization
Autonomously construct available system architecture to optimize workload outcome





Still runs on real infrastructure

New Compute Applications

- Cognitive Computing
- Big Data Analytics
- Mobility and Social

Will need advances in….

- Technology
- Alternative Designs
- Special Purpose Accelerators
- Fabric Interconnect Technologies
- Memory and Storage Technologies

Smarter Computing: Tomorrow Ready.

The IT infrastructure that enables a Smarter Planet

Cloud Ready

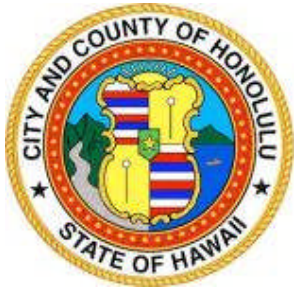
- An efficient, scalable infrastructure
- Improved speed and flexibility
- Business innovation

Data Ready

- Shared access to trustworthy information
- Actionable insights on operational data
- Maximum availability of business insights

Security Ready

- Data security and integrity
- Trusted identity and access management
- Minimal overhead to meet compliance requirements



What if you could empower the general public to create citizen-centric applications with access to years worth of city data?

PREMIER

What if you could save 24,000 lives and $2.8 billion by tapping into the collective insight of 86,000 health care providers?

What if you could deploy an IBM Cloud solution that supports up to 40% business growth, reduces operating costs 30% and speeds deployment and delivery of new services?

Vale CARD

What if you could enable the real-time integration of data seamlessly and securely to provide trusted information for critical analysis on increasing amounts of rapidly changing data?

Bankia

Cloud Ready: **A self-service portal delivers real-time traffic reporting, exact bus locations, and dozens of other services.**
Data Ready: **Leveraging geospatial data, the city increased property tax revenue by USD$1.4 million in only three months.**
Security Ready: **Trusted identity and access management created a most secure virtualized environment where thousands of citizens were allowed to access data and use it to create personalized apps by using data in the system without creating risks to the data integrity or privacy.**

Cloud Ready: **A virtualized platform provides doctors with data that is accessible in real time at the point of care.**
Data Ready: **A first-of-a-kind informatics repository cleanses, integrates and analyzes data from 157 hospitals.**
Security Ready: **Advanced data, service and identity security management safeguards sensitive patient data.**

Cloud Ready: **Vale implemented IBM SmartCloud Entry on IBM FlexSystem to leverage a more efficient, scalable infrastructure**

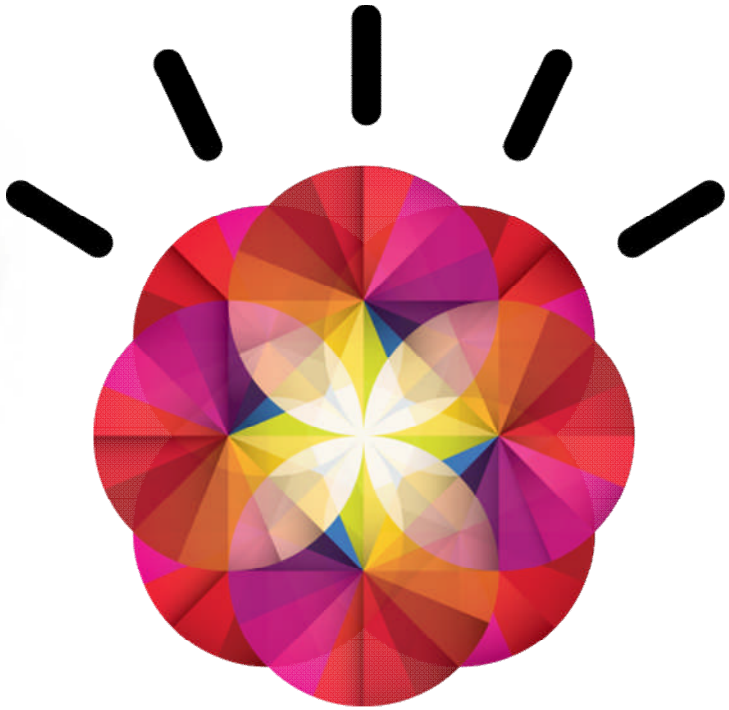
…employed IBM's self-service automation and provisioning capabilities to drive a 30% reduction in operating costs

… and utilizing their new cloud environment to better optimize current projects and remain prepared for new growth opportunities

Data Ready: **Bankia wanted to use a single source of integrated and verified data to develop innovative analyses and make business forecast with more confidence and accuracy**

Security Ready: **Implemented InfoSphere software running on System z to integrate deployed to secure critical data and DS8700 storage to manage a broader range of workloads more efficiently and securely**

Questions



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