

Strategic Technology Trends & the Impact on business

Peter Sondergaard
Senior Vice President, Research

The New Economics of IT



IT Productivity



IT-Led Business Revenue



Business Productivity

New Realities, Rules & Opportunities

By 2015, "Revenue" Will Be the Key Factor Determining Compensation for Most New Global 2000 CIOs.

CIO Strategies

Ranking of CIO strategies CIOs selected as one of their top five priorities in 2010 and projected for 2013.

	Ranking	2010		2009	2008	2007	2013
Delivering projects that enable business growth		1	↑	3	1	1	1
Linking business and IT strategies and plans		2	↓	1	2	2	3
Reducing the cost of IT		3	↓	2	10	12	11
Use of information/intelligence		7	↑	10	9	6	2

The New Era of Low-Cost, Highly Effective IT Will Require a New Way of Thinking

	From	Change	To
Structure	Vertical silos independently exploring IT	Tighter integration of strategy and execution	Horizontal structures optimizing business outcomes through shared IT
Infrastructure	Focus on the advances in data-processing volume from Moore's Law	Target earnings per IT employee	Focus on the cost and flexibility advances from the Internet and metadata
Process	Supporting the processes of business operations	Data-supported decisions and systematized execution	Enabling the management processes of change and improvement
Mind-Set	Belief that IT is a growing cost best capped by percentage of revenue	Belief that IT can radically improve its internal productivity	Belief in IT as investment best measured by its productivity contribution

Technologies You Can't Afford to Ignore — Tablets Hot Near Term; Midterm Fabric, Context & UXP Impact Is Big

Top 10 Strategic Technology Areas for 2010

1. Cloud Computing
2. Advanced Analytics
3. Client Computing
4. IT for Green
5. Reshaping the Data Center
6. Social Computing
7. Security — Activity Monitoring
8. Flash Memory
9. Virtualization for Availability
10. Mobile Applications

Top 10 Strategic Technology Areas for 2011

1. Cloud Computing
2. Mobile Applications and Media Tablets
3. Next-Generation Analytics
4. Social Analytics
5. Social Communications and Collaboration
6. Video
7. Context-Aware Computing
8. Ubiquitous Computing
9. Storage Class Memory
10. Fabric-Based Infrastructure and Computers



Modified for 2011



New for 2011



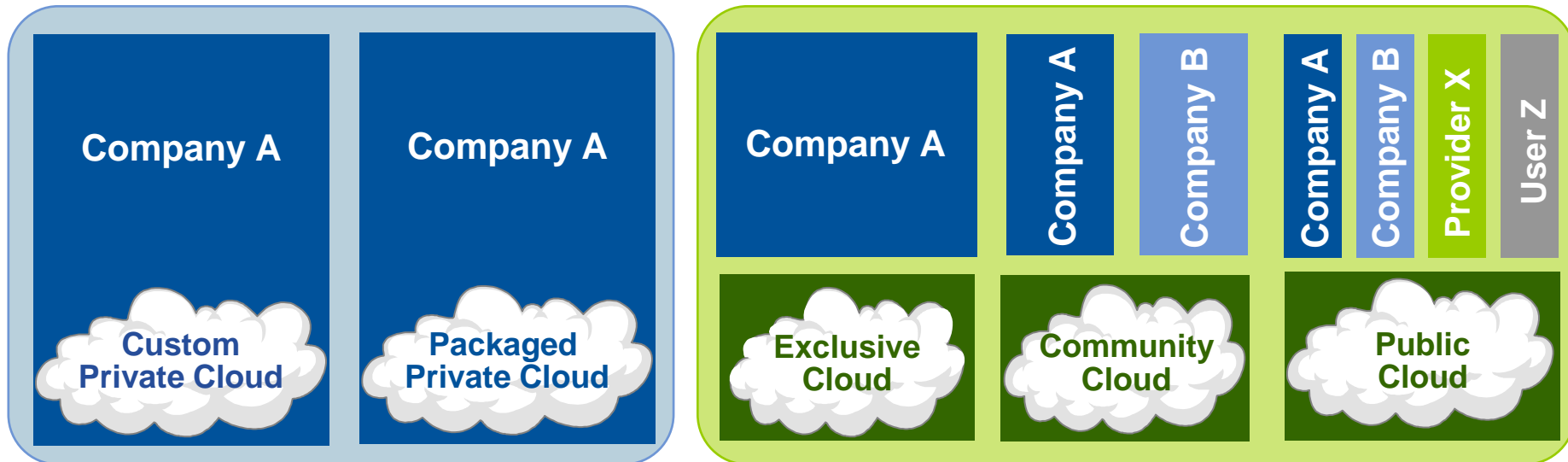
Dropped for 2011

Cloud Delivery Models

Closed Private



Open Public

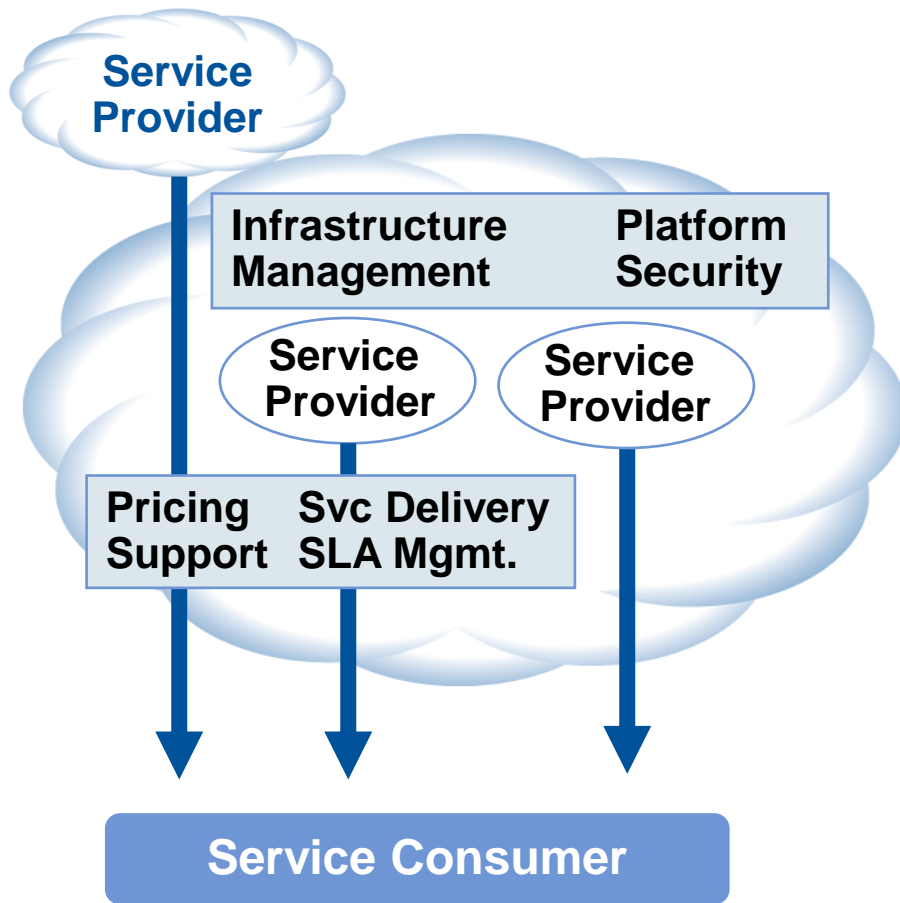


- Fall-back position
- Cloudwashing
- IT is comfortable
- Lead spend today
- Future
 - Cloud svc provider
 - A few large users

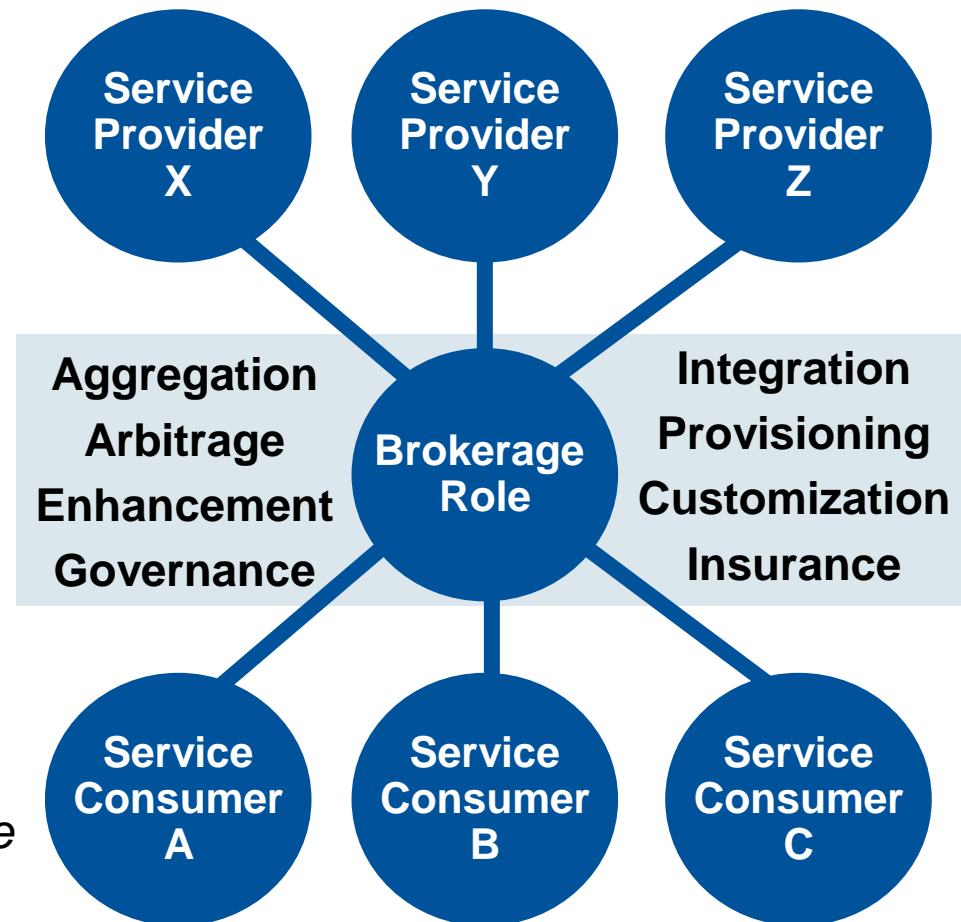
- Rising interest
- Few real options
- IT is intrigued
- Little spend today
- Future
 - Business sweet spot
 - Select SaaS providers

- The Promise
- Growing model
- IT is afraid
- Some spend today
- Future
 - Individuals
 - Select workloads

Cloud Brokers and Cloud Ecosystems



Brokerage: Where a third party is working on behalf of the consumer of one or more cloud services to add value to the service being consumed



Ecosystem: Where a provider delivers services that are used as a foundation to build/host, deliver and/or support a service delivered to cloud consumers

And... Three Styles of Security for Public/Private Cloud Can Affect Your Safety

Security assessment difficulties

- Adequate information is hard to obtain.

Data compromise risk

- Encryption is a partial solution to privacy issues.

Data loss risk

- How do you back up a cloud service?

Vendor viability and data portability concerns

- Open-cloud portability standards are still immature.

Growing potential for "cloud hacking"


- Can a highly distributed and virtualized environment be secure?

Security Requirements

	Low	Medium	High
Public	<ul style="list-style-type: none"> • Cloud provider security • SAS 70 sufficient? 	<ul style="list-style-type: none"> • Brokered in cloud • Custom or industry assessment 	<ul style="list-style-type: none"> • Outside the cloud • No trust of the cloud
Private	<ul style="list-style-type: none"> • Security built into VM is used • Accept vendor security claims 	<ul style="list-style-type: none"> • Third-party security on VM is used • Certification/ accreditation of system 	<ul style="list-style-type: none"> • Security is performed outside the VM • Security product certification

Trust of the Cloud

The New Vendor Reality: Survival of the Agile

- 
- Managing the shift from product to service
 - Managing change in pricing models (and accepting risk)
 - Disintermediating themselves from their customers
 - Cannibalizing on-premises products
 - Low barrier to entry (SaaS) and completely new competition
 - Will the business models even work?

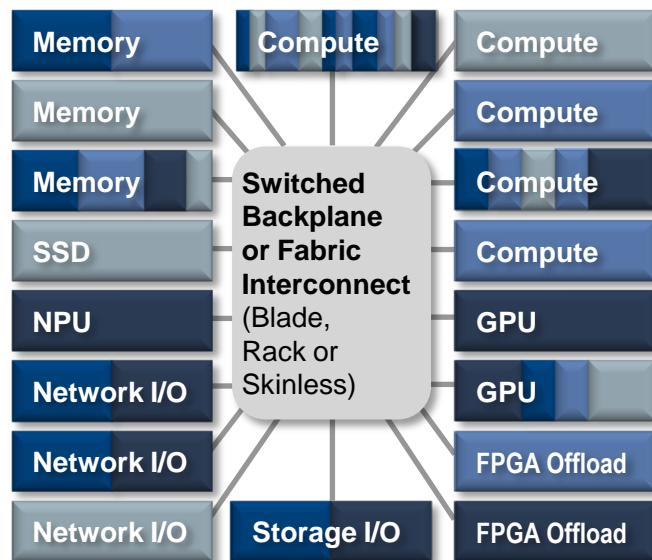
Many won't survive

Fabric-Based Computers and Fabric Based Infrastructure — Two Distinct Ideas

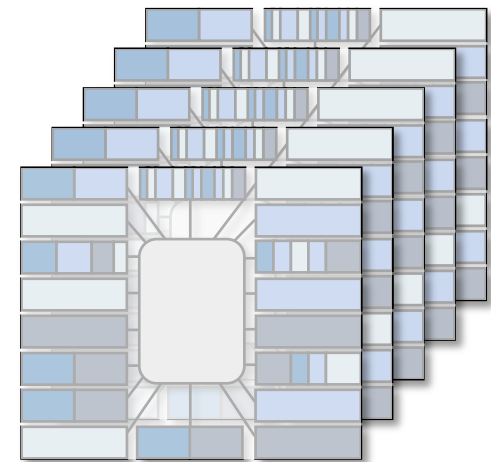
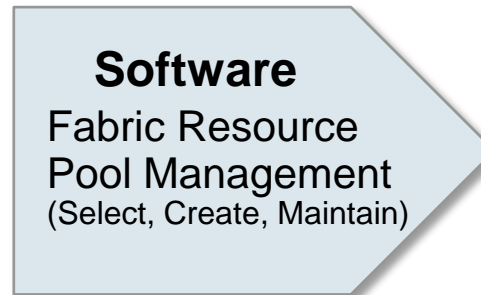
RTI Workflow, Orchestration, Life Cycle, Policies, etc.

Applications Purposing/Re-Purposing, Templates, Configure , Performance, Optimization/Placement

Infrastructure Discover, Virtualize, Provision, Capacity, Power, Bandwidth, Mobility, Administration



Fabric-Based Infrastructure



Fabric-Enabled Computer – what is shipping today

Fabric-Based Computer – the next stage of server evolution

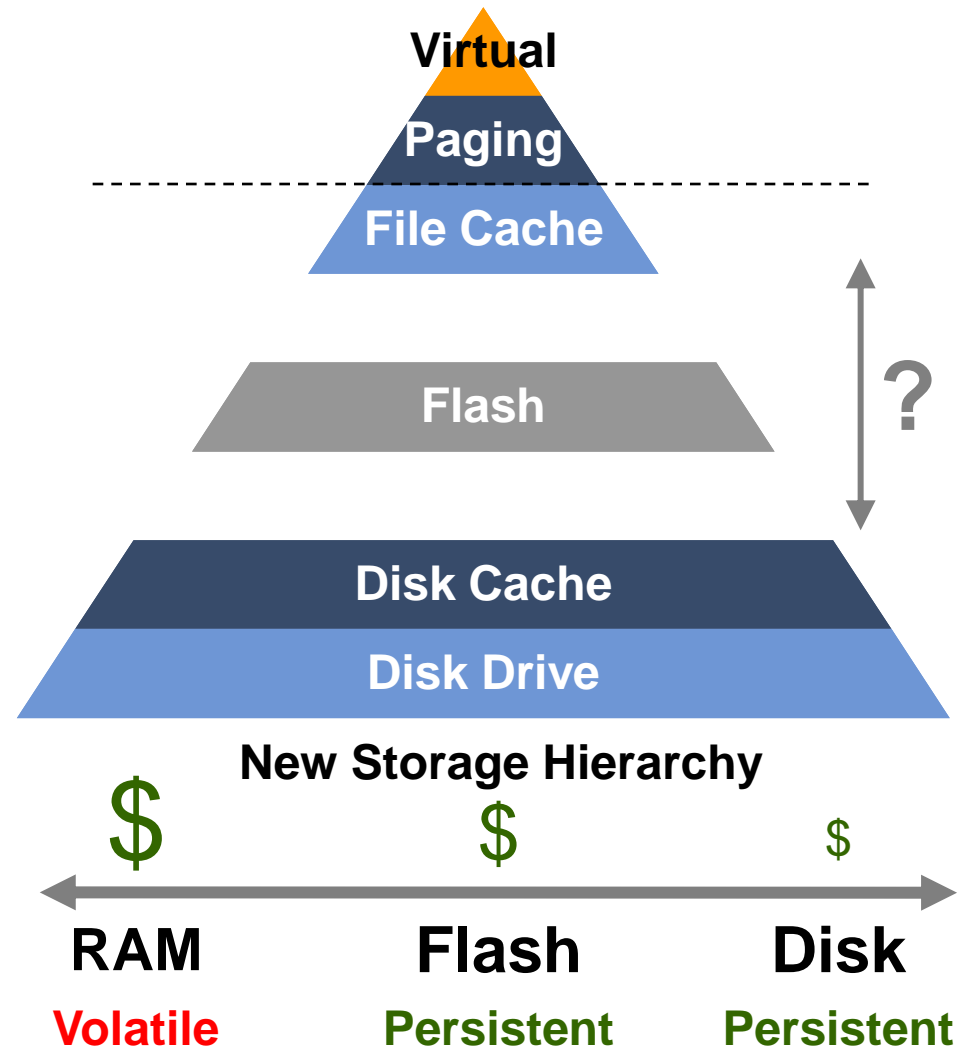
Storage Class Memory — Flash and RAM

Flash Offers New Options

- Use as cache?
- Use as solid-state disk?
- Implement as a new layer?
- Internal or external location?
- New layer allows unique placement philosophy
 - Operating system chooses
 - Application/middleware picks
 - Formal OS interface helpful

RAM in Place of Disk

- In-memory database option
- Not persistent, limits use



The Future Is Mobile



Harbinger: Many hundreds of thousands of new and more powerful applications are coming online. This will accelerate.

How Does It Affect You?

- Becomes an important design point
- Mobile applications can yield:
 - Stickiness
 - Customer behavioral inertia
 - Establishes valuable "real estate"
 - Company differentiation
 - Support for impulse interactions
- Proliferating device types
- Can be context aware including location, movement, orientation
- Delivery, management and support complexity will increase
- The rise of the "App Store" entity

Video Moves Into the Mainstream

• Tipping Points 2011-2013

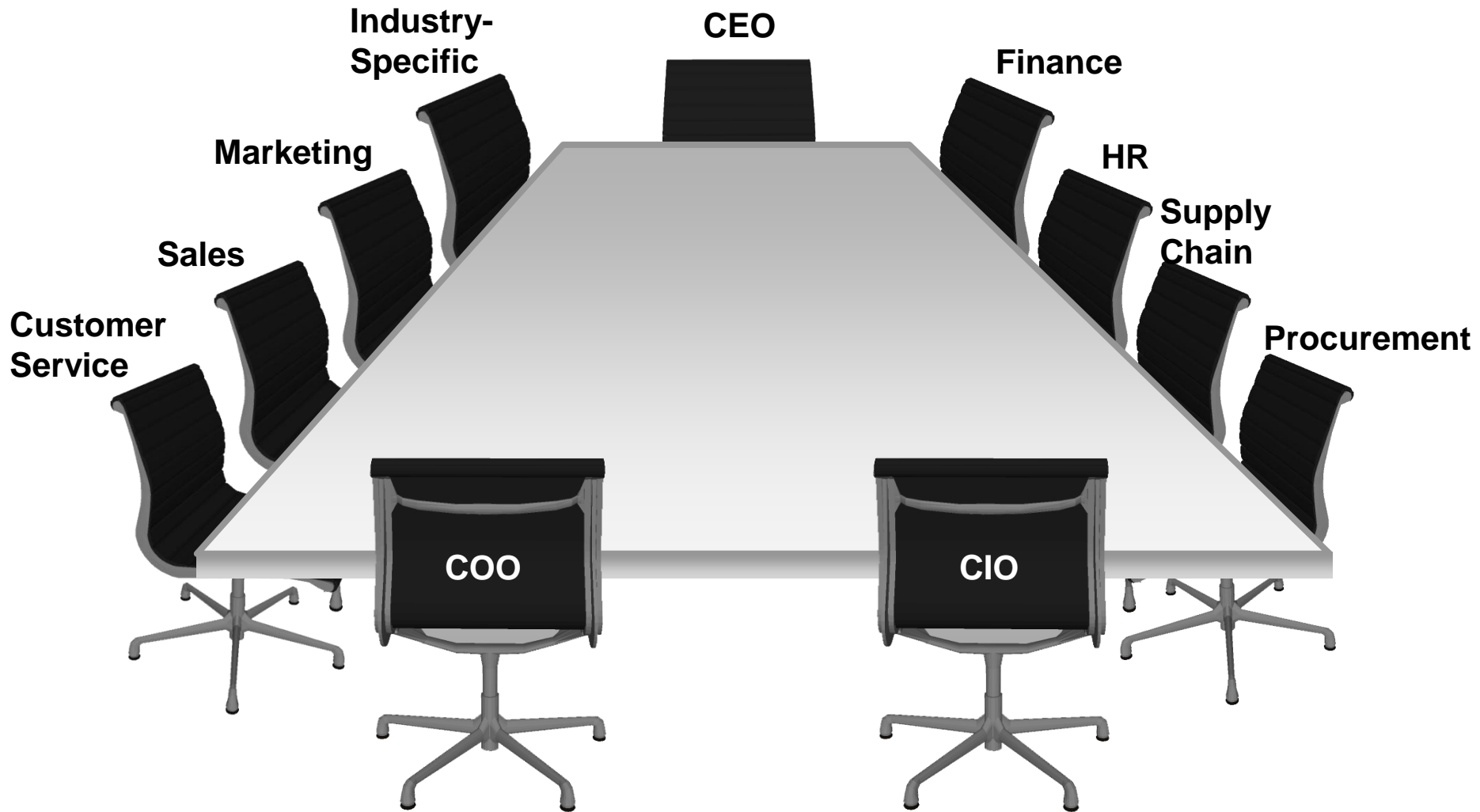
- Ubiquitous low-cost portable video record & playback devices
- Consumer use and volume of user generated content exploding
- Low-cost & high-quality software
- Vendor investments ramp up

• The Implications

- Video content mgmt., delivery & archiving needed
- Must address potential for out of context & unintended use
- Need new design skills
- New E-discovery challenges
- Determine appropriate use of internal vs. cloud-based storage & delivery
- Privacy issues and use policies must be addressed
- Conference rooms recorded by default?



Business Leaders Focus on Immediate Insight, Predictability and Business Outcomes



The Information Big Picture

Analytics and Information Use Cases



Apps Store



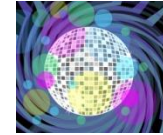
Mobile



BI



Analytics



Pattern Discovery



Industry Apps

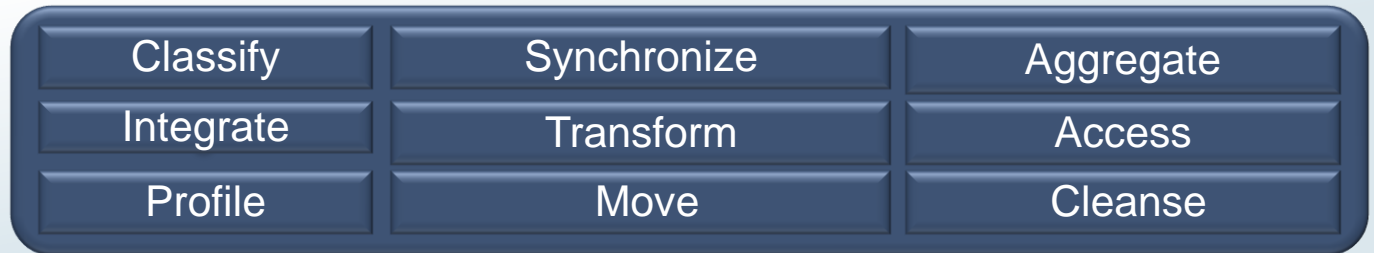


Horizontal Apps

Analytics and Information Platform

Information & Analytics Platform

Information Management



Information Storage and Governance

Content Store/Data Store/DBMS

Information Sources



Transactional Data



Documents



IT/OT



Mobile



Text



Audio



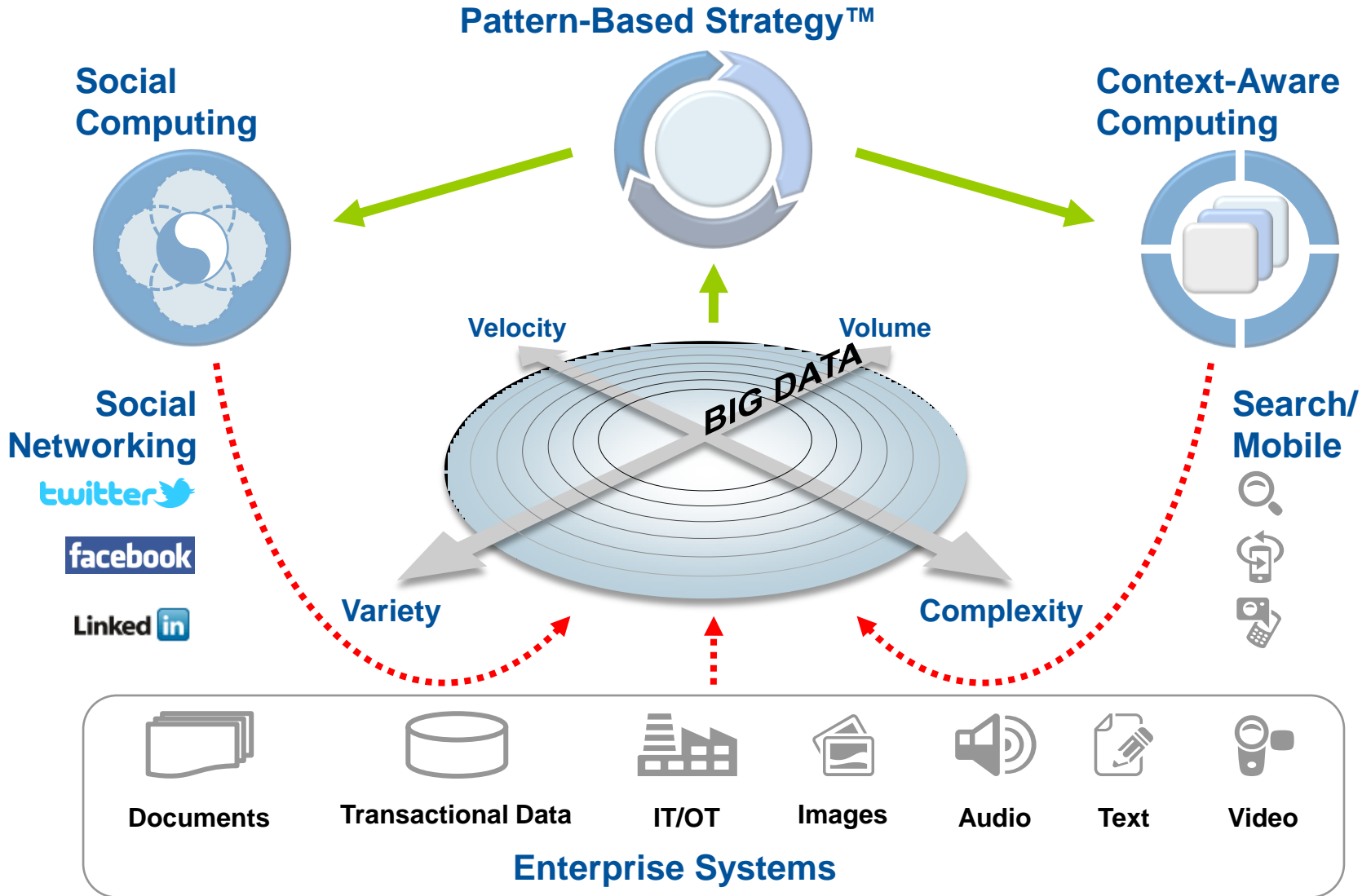
Video



Images



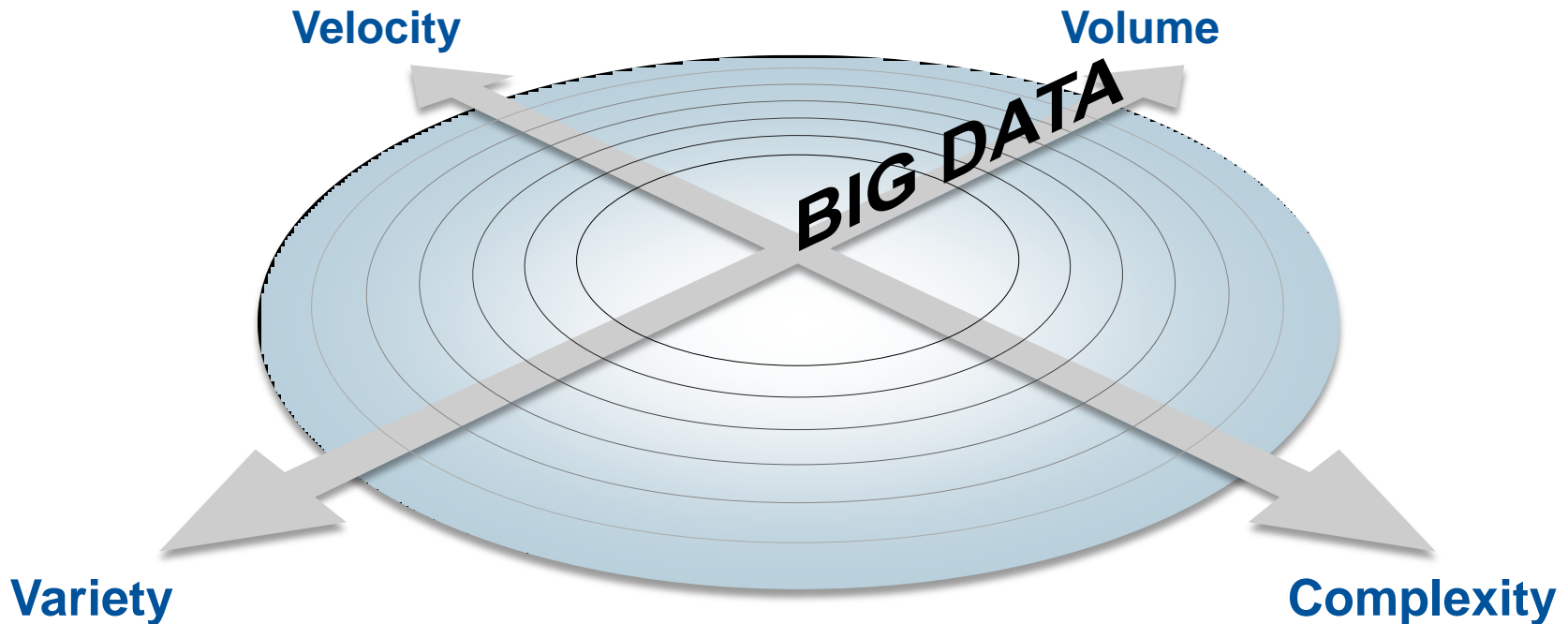
The Big Data Big Picture



Basic Big Data Graphic

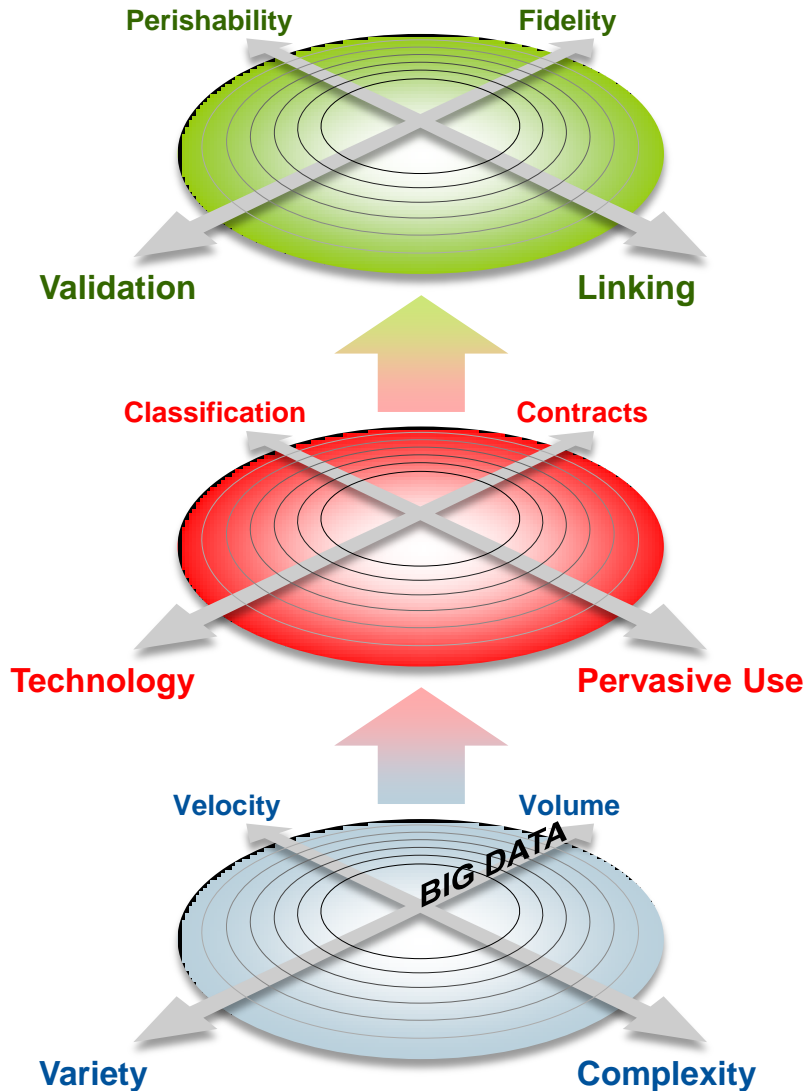
(Quantification: Extreme Data — Forces New Awareness)

The most difficult information management issues emerge from the simultaneous and persistent interaction of extreme volume, diversity of data formats, velocity of record creation, variable latencies and the complexity of individual data types within formats. "Big data" is a popular proxy for this concept, but encourages an inappropriate focus on volume. The "weight" of data processing requirements is constantly increasing and overbears existing technology. This creates a perpetual pendulum swing between the capability of our systems and the demand on them to process information.



Advanced Big Data Graphic

Quantification + Access + Quality Assurance = Data Management & Integration



• Qualification and Assurance

- Fidelity, co-created meaning and context
- Linked Data
- Validation
- Perishable nature

• Access Enablement and Control

- Sensitivity/Classification
- Agreed taxonomy/ontology or Contracts
- "Heat" Mapping or Pervasiveness of Use-case
- Technology enablement & advances

• Quantification

- Volume, "Big"
- Variety
- Complexity
- Velocity

Next Generation Analytics: Operational Analytics to Optimize and Simulate

The third wave in support for decisions in organizations

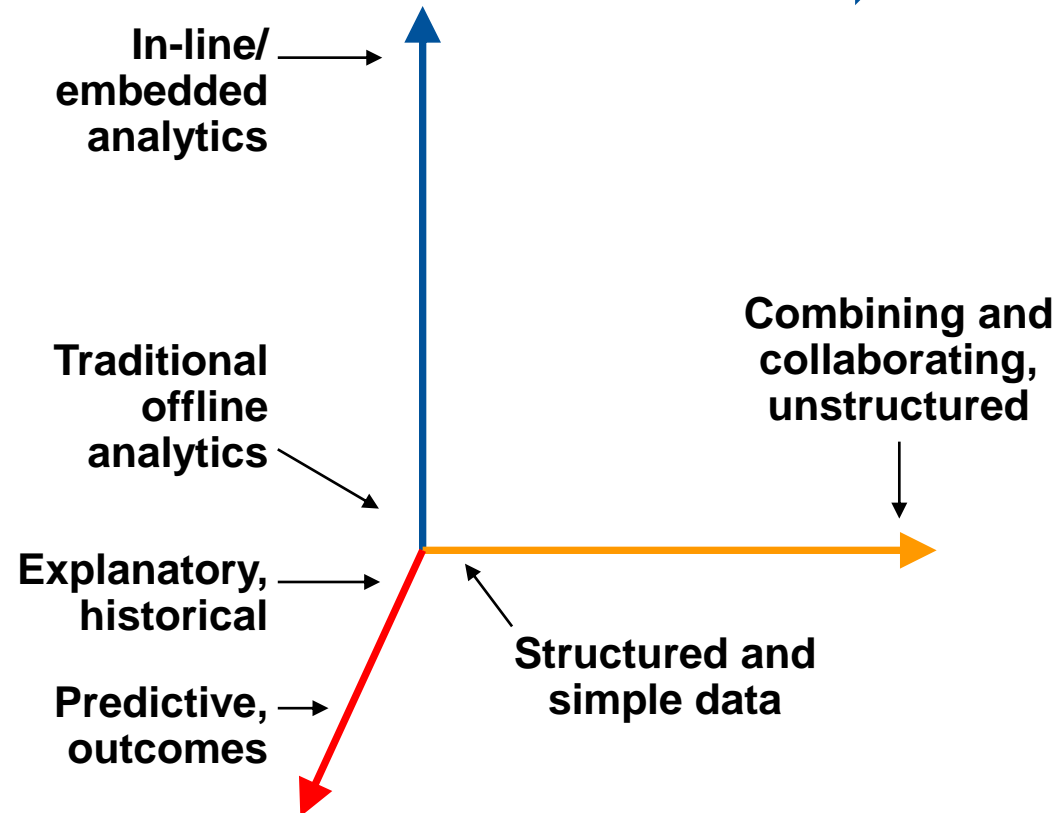
Fixed Rules

Data

Predictions

Enabling Trends

- Connectivity more ubiquitous
- More-powerful processors — the Moore's Law dividend
- Sophisticated mobile applications are arriving
- Data mashup tools
- Social and BI integration
- BI search improvements



Social Environments: Co-Creation and Co-Filtering

Links
Discussions
Comments
Messages
Ratings
Bookmarks
Tags
Friend lists
Refinements
Rich profiles

**Find and
Filter**



**Create and
Share**

Link structure
Tag structure
Group structure
History of
interaction
Social network
analysis
Recommendations

'It's not information overload. It's filter failure.'

— *Clay Shirky*

Social Communications and Collaboration

- **UCC & Social Trends Converge**

- UCC brings together many areas in 2011-2013
- Social media in
- Mobile UCC is a key driver

- **Social Worlds Collide**

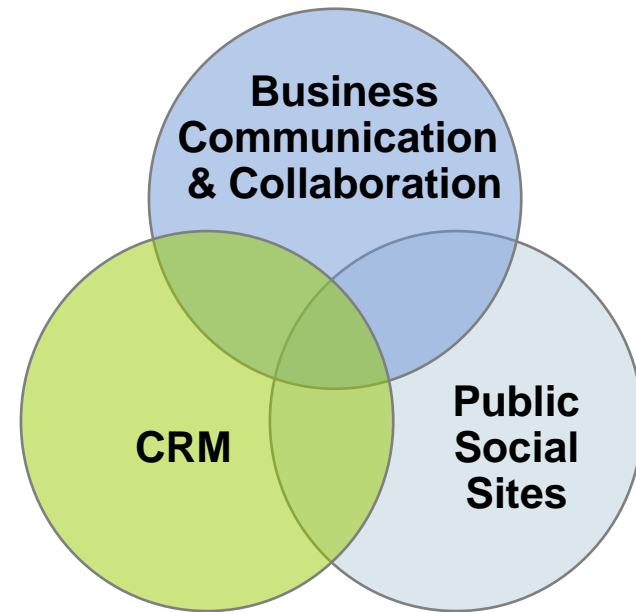
- Public, private & work persona

- **Collective Behavior Drives Value**

- Collective intelligence, expertise location, interest cultivation, relationship leverage, flash coordination, emergent structures

- **Video Use Brings New Challenges**

- Online video tops the list for social media tool usage



Social Media

Social networking: profiles, connections

Social collaboration: wikis, blogs, collaborative office

Social publishing: sharing, aggregation publishing, video

Social feedback: rating, ranking, commentary

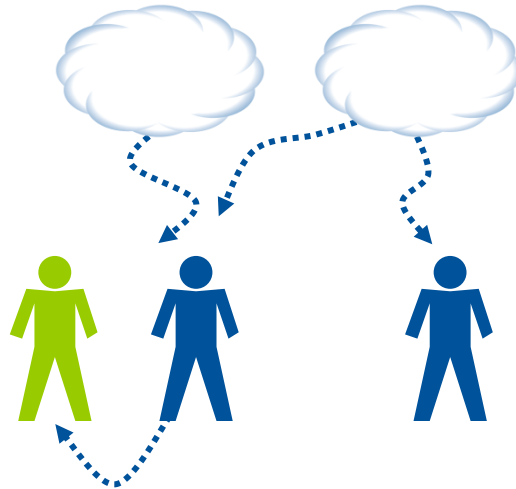
The Emerging Architecture of Context-Aware Computing

Precontext



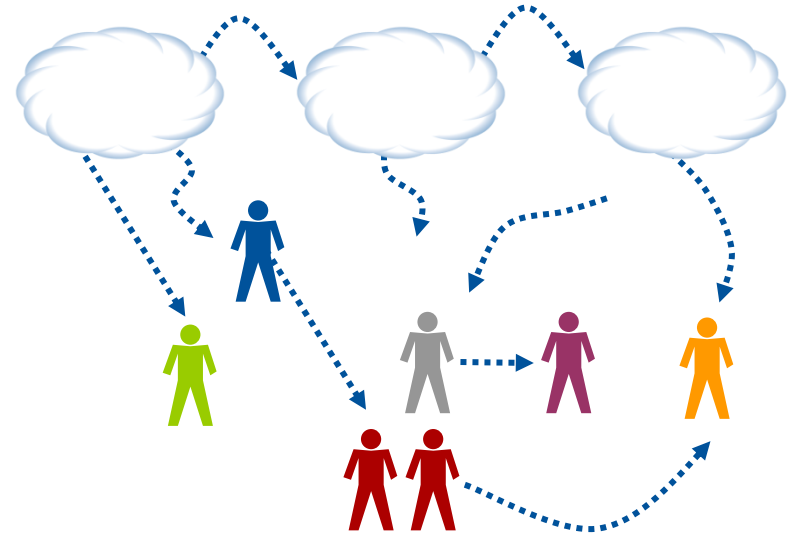
Presence,
Personalization
Ad-serving
Reactive

Simple, Closed, Targeted & Isolated



Location, social network
Identity management
Simple augmented reality
Simple proactive alerts
Adjacent devices, people

Complex, Open, Federated & Interoperable



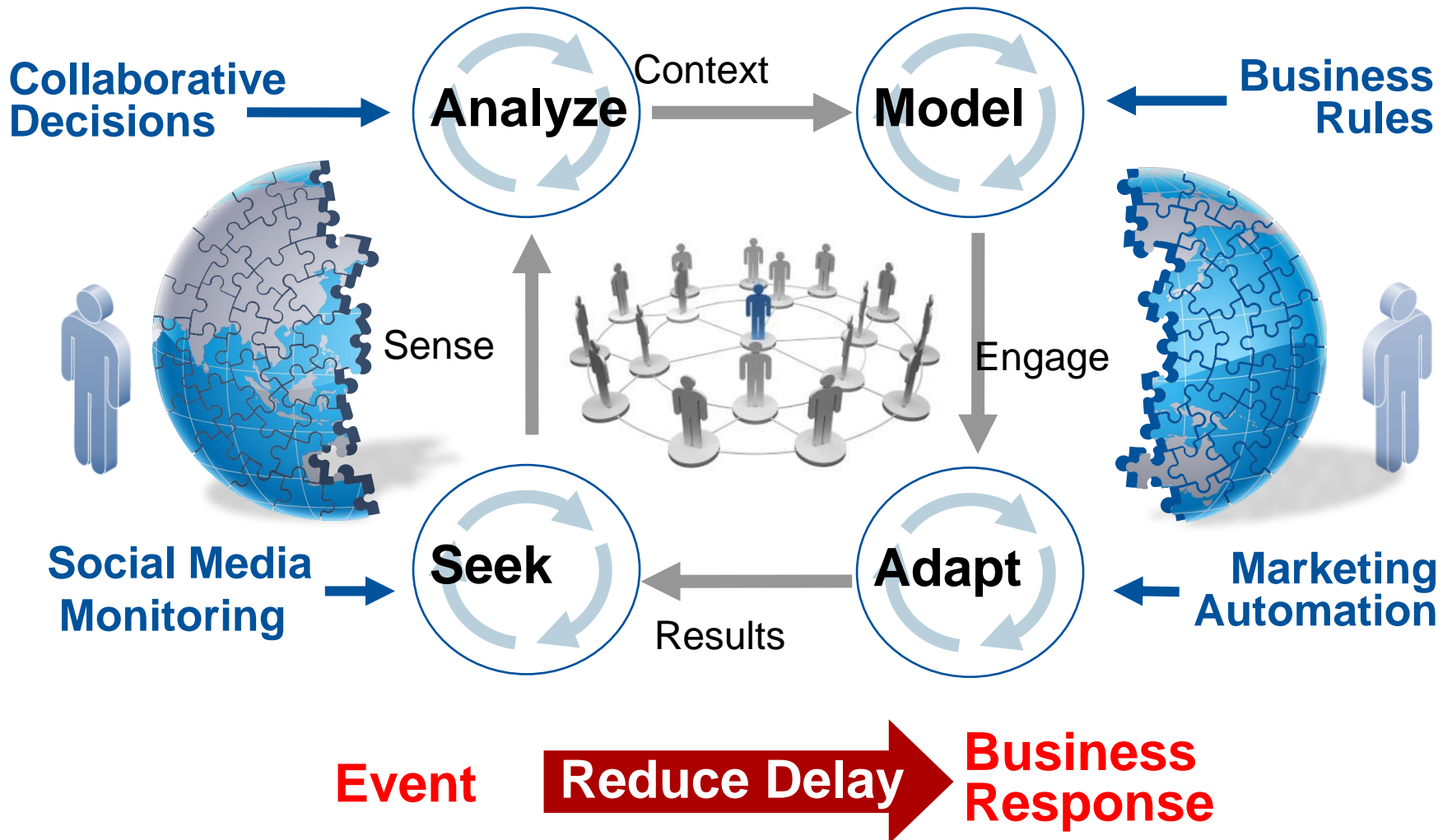
Complex context brokers
Context-enriched content
Context delivery architecture
Complex anticipatory behavior,
Ensemble programming,

2010

2011-2013

2014 - 2018

Building the Feedback Loop



Action Plan

Monday Morning

- Establish a cross-functional team consisting of IT, business user, procurement, legal and accounting professionals to develop and review cloud computing strategies.
- Establish governance policies for the use of user generated video content.
- Examine how social media is impacting your business and monitor what is being said on public social networks.
- Consider which applications could benefit from context enrichment.
- Identify current application performance issues and evaluate use of flash-based SSDs as a simple and quick fix.
- Kick off a search for combinations of information sources, including social sites and unstructured data, that may be mined for valuable insights.

Action Plan

Next 90 Days

- Develop a strategy for when to consume public and private cloud services and when to build private cloud implementations.
- Build a social analytics plan and integrate it with your BI and social communication and collaboration strategies .
- Look at reducing your need for expensive high-speed devices by leveraging flash-based SSDs in conjunction with lower RPM drives.
- Verify that expected benefits can be realized before choosing fabric-based infrastructure over lower-cost traditional approaches.
- Work with marketing departments to identify mobile applications and strategies that can enhance customer experience, support new offerings or increase sales.

Action Plan

Next 12 Months

- Establish a strategy to position IT as an internal cloud service broker and determine where third-party cloud brokerage services add value.
- Bring UCC, collaboration, social software and context-aware computing teams together and begin developing a coordinated strategy.
- Build a plan for the migration of analytic information and deployment of appropriate systems to support operational and predictive analytics when it is needed.
- Incorporate social analytics into customer-facing websites and internal decision-making systems.
- Build a strategy to exploit video in 2011-2015, including selection of appropriate tools to manage video creation, deployment and use.
- Pilot systems exploiting flash as a new memory layer where this can meet performance targets at substantially lower cost than existing alternatives.