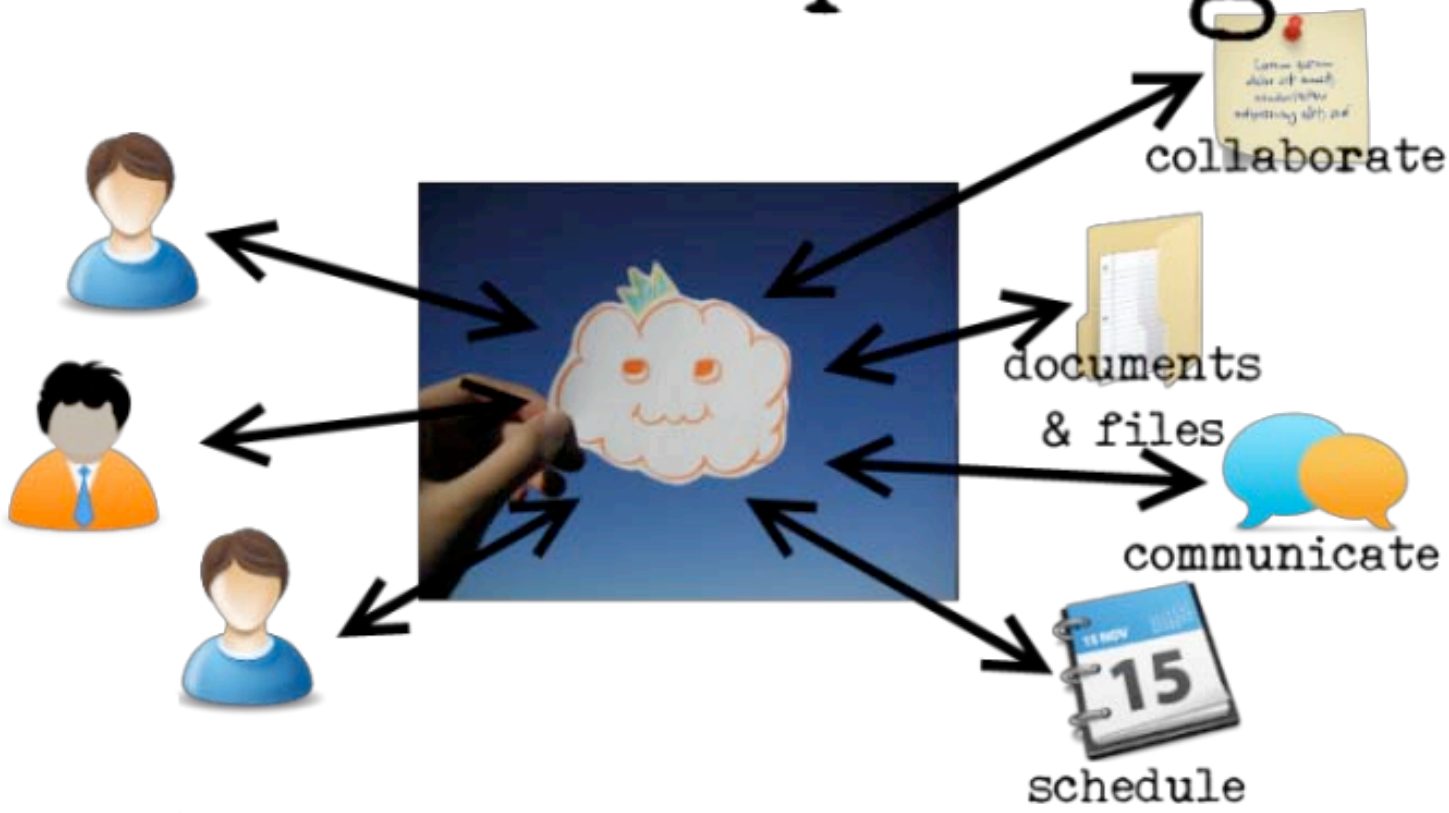
New Integration Approaches in a Cloud Computing World

David S. Linthicum, CTO
dlinthicum@bluemountainlabs.com

New Frontier?

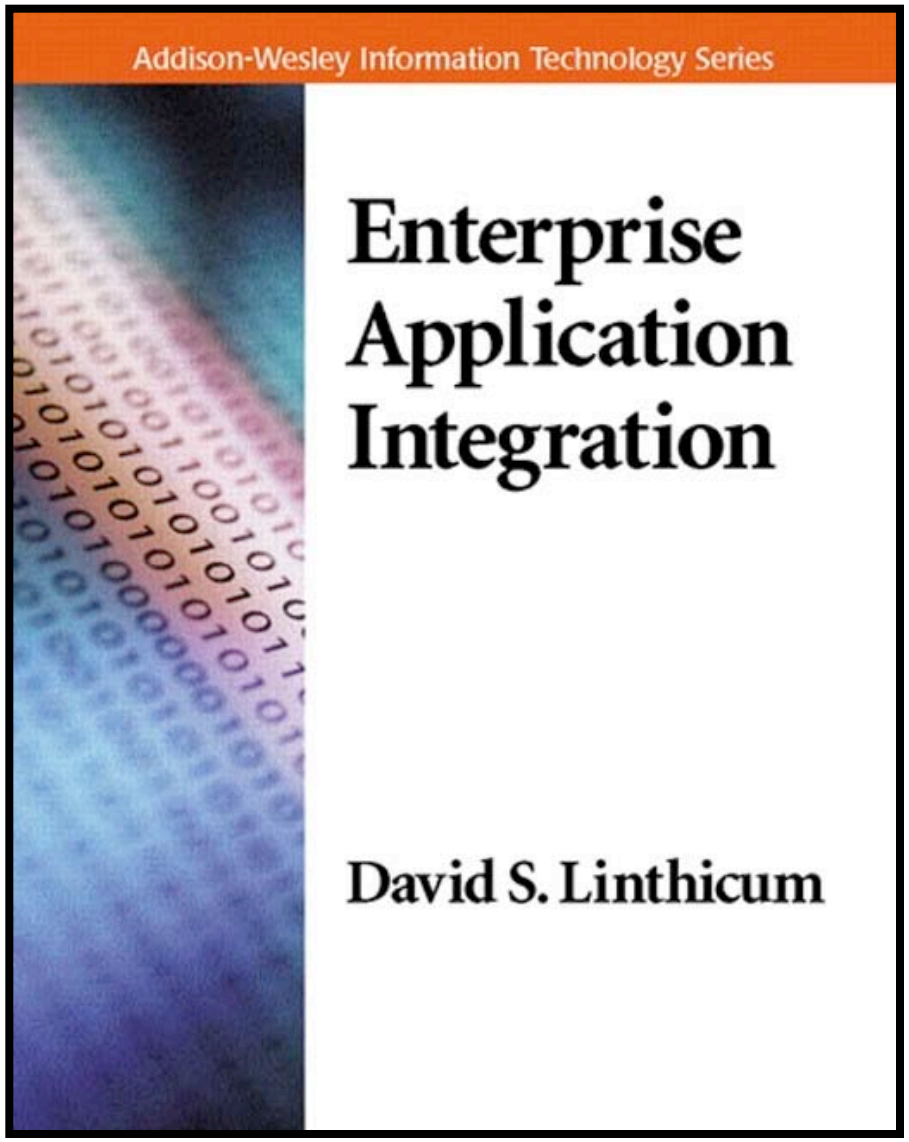
cloud computing



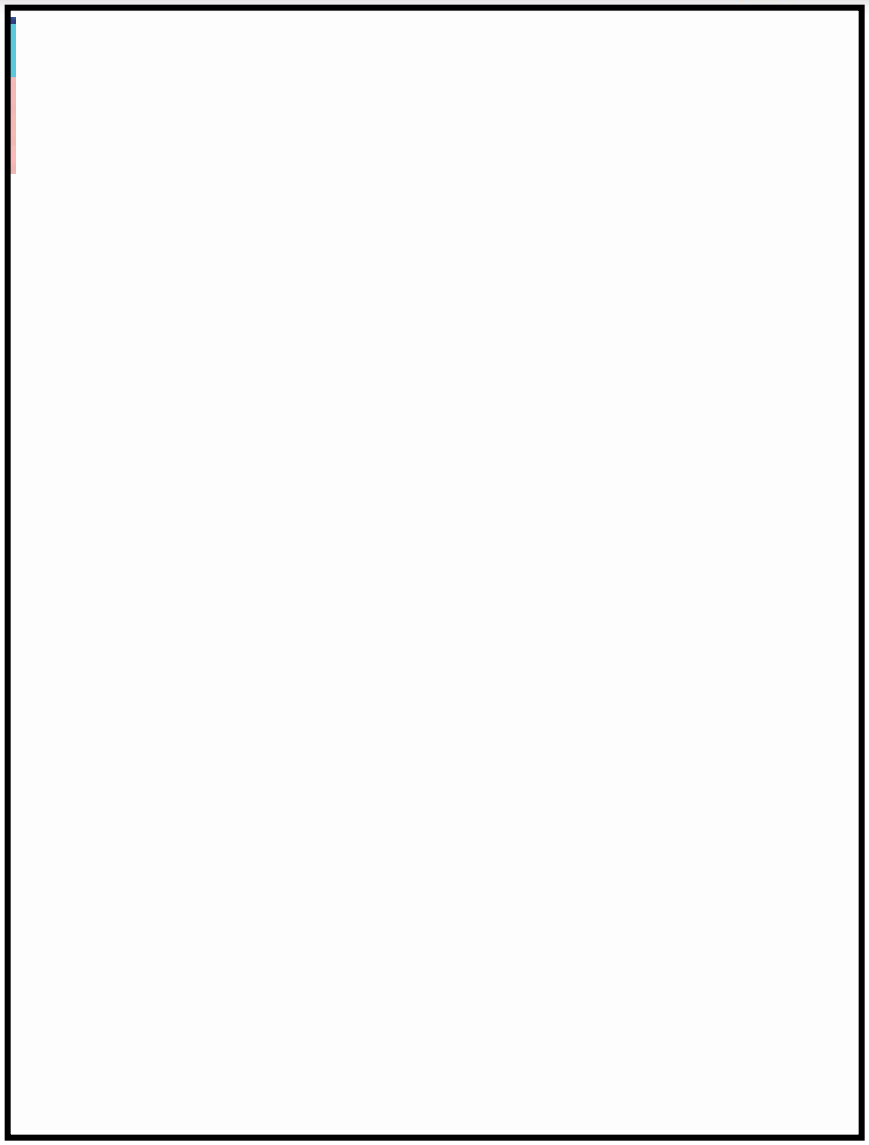
users → cloud → computing

Fragmentation of Data, Services, and Processes

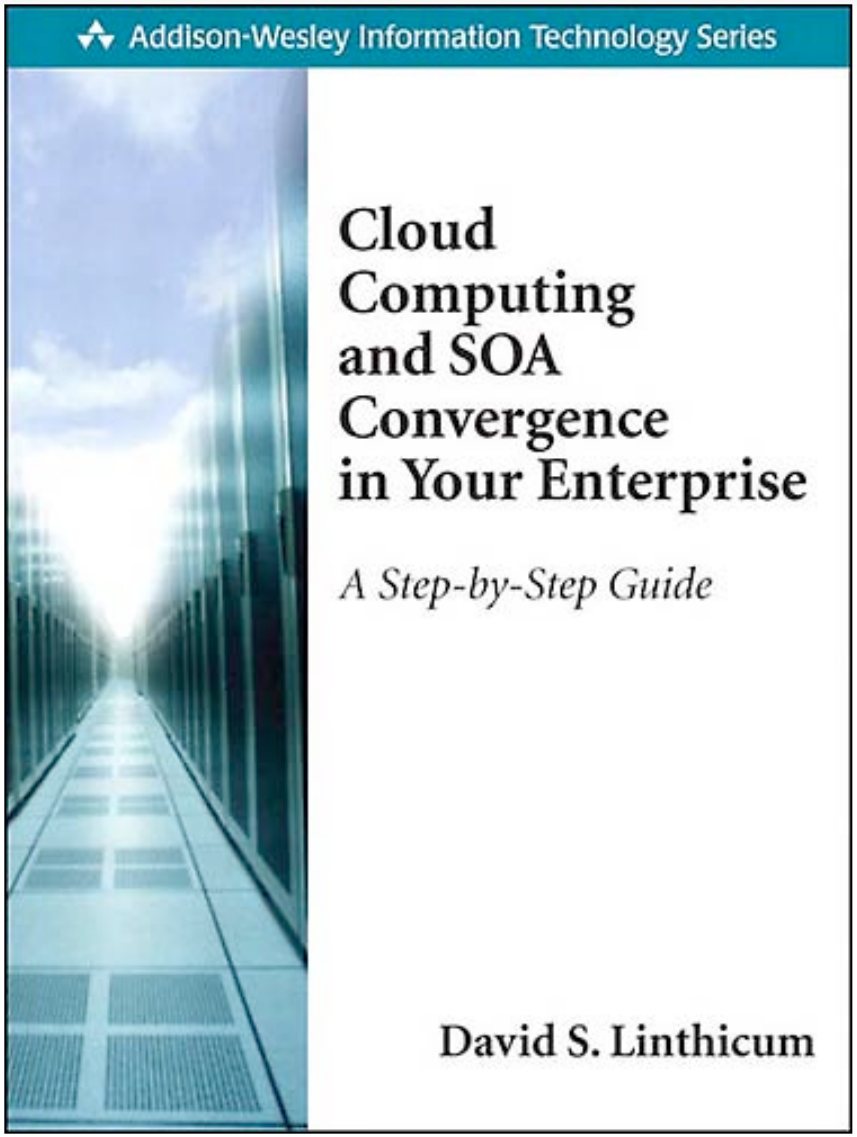
Integration and the cloud: An Afterthought



- Simple information exchange.
- Adapter management.
- Intra-enterprise.
- Process focused.
- Emerging use of services.



- Simple information exchange.
- Use of services.
- Use of processes.
- Use of federated integration.
- Leveraging transactions.



- Data integration.
- Use of SOA patterns.
- Use of standards.
- Use of open source.
- Movement to the hybrid cloud.

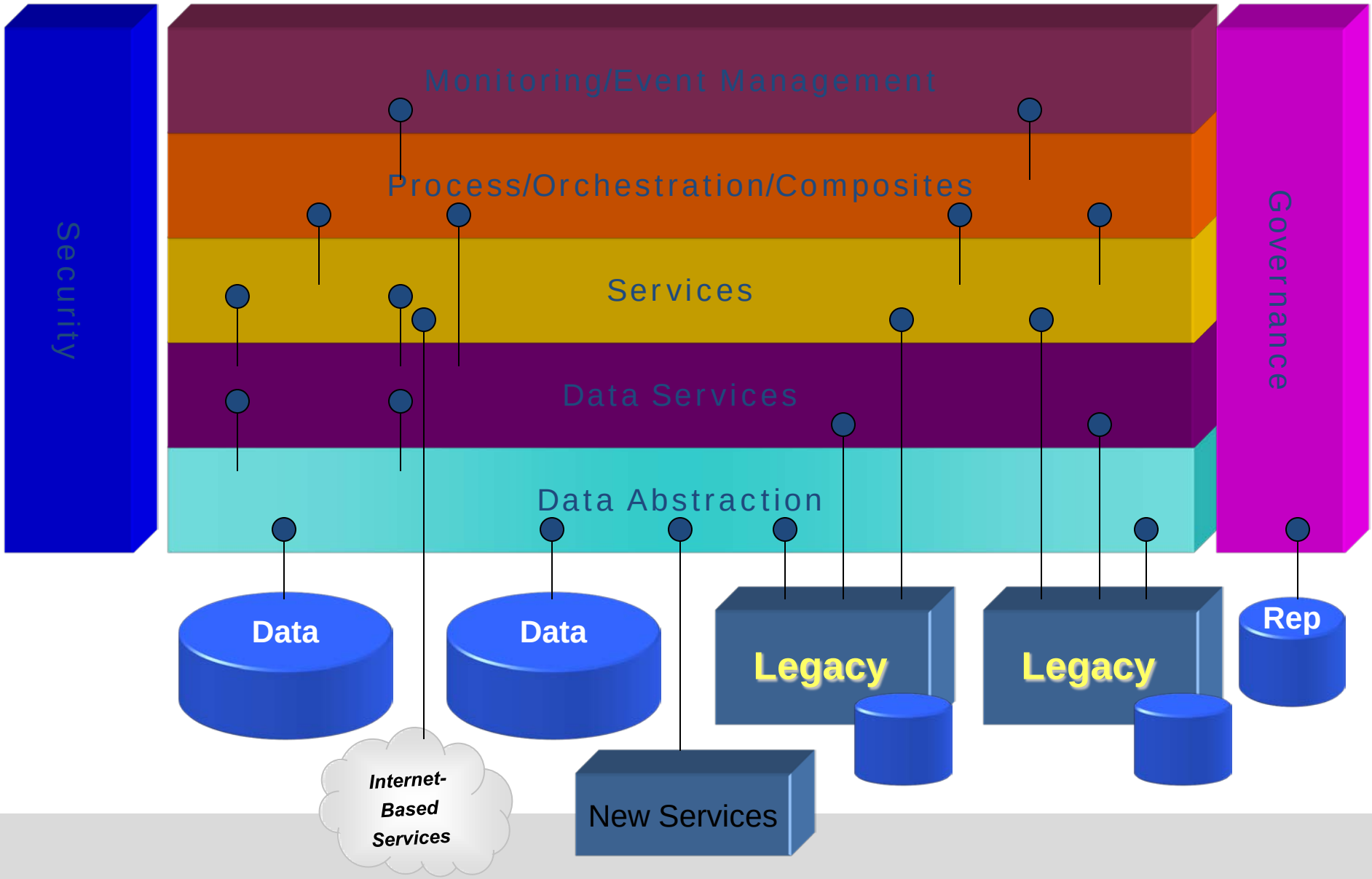
So, What Really Changes in the Cloud?

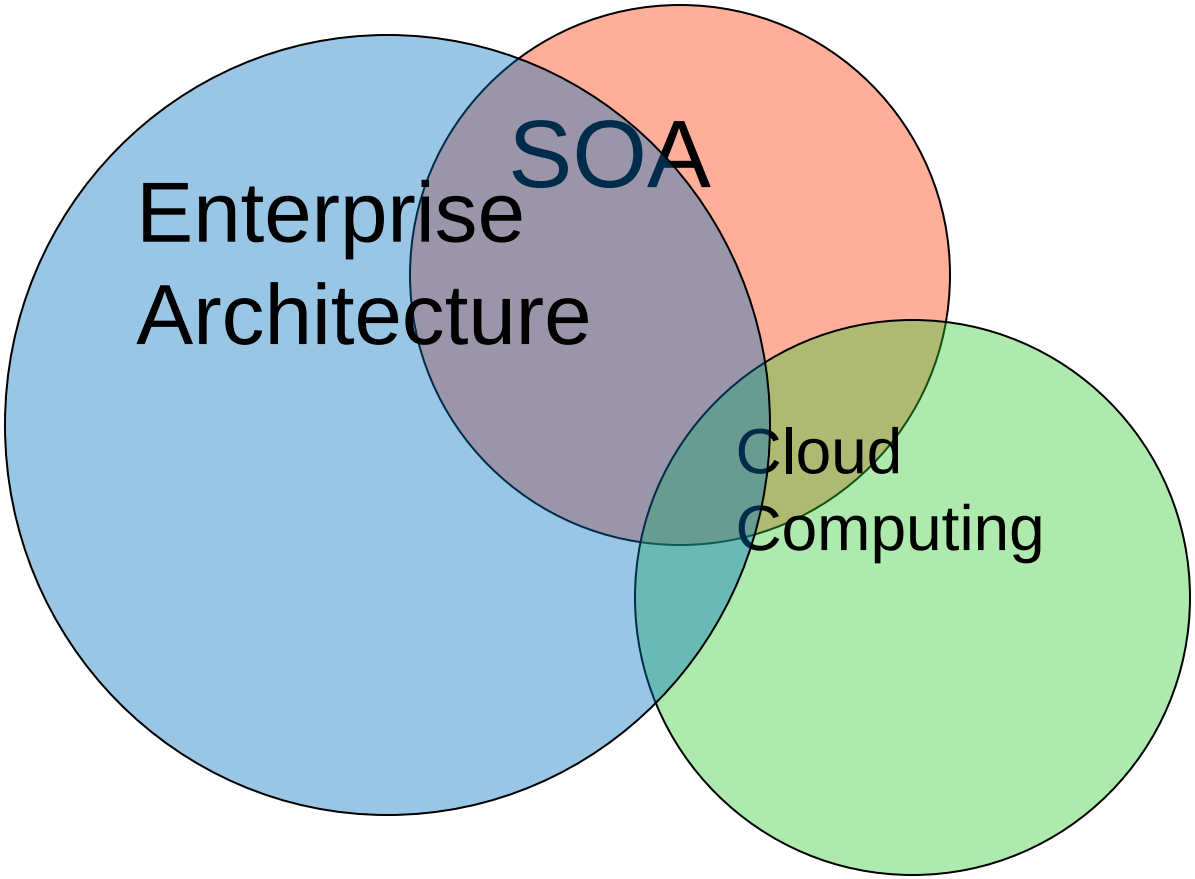
In addition to the sheer scale of big data, the real-time and high frequency nature of the data is also key. For example, ‘nowcasting’ is used extensively and adds considerable power to prediction. Similarly the high frequency of data allows users to test theories in near real-time and to a level never before possible.

-McKinsey, May 2011

SOA Influence

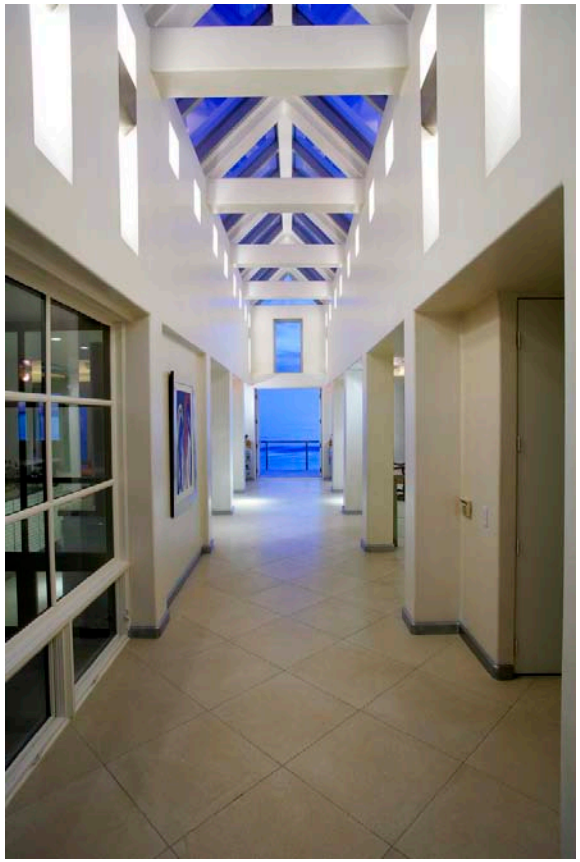
New and Old Focus: SOA




Enterprise Architecture
SOA
Cloud Computing

SOA Challenges

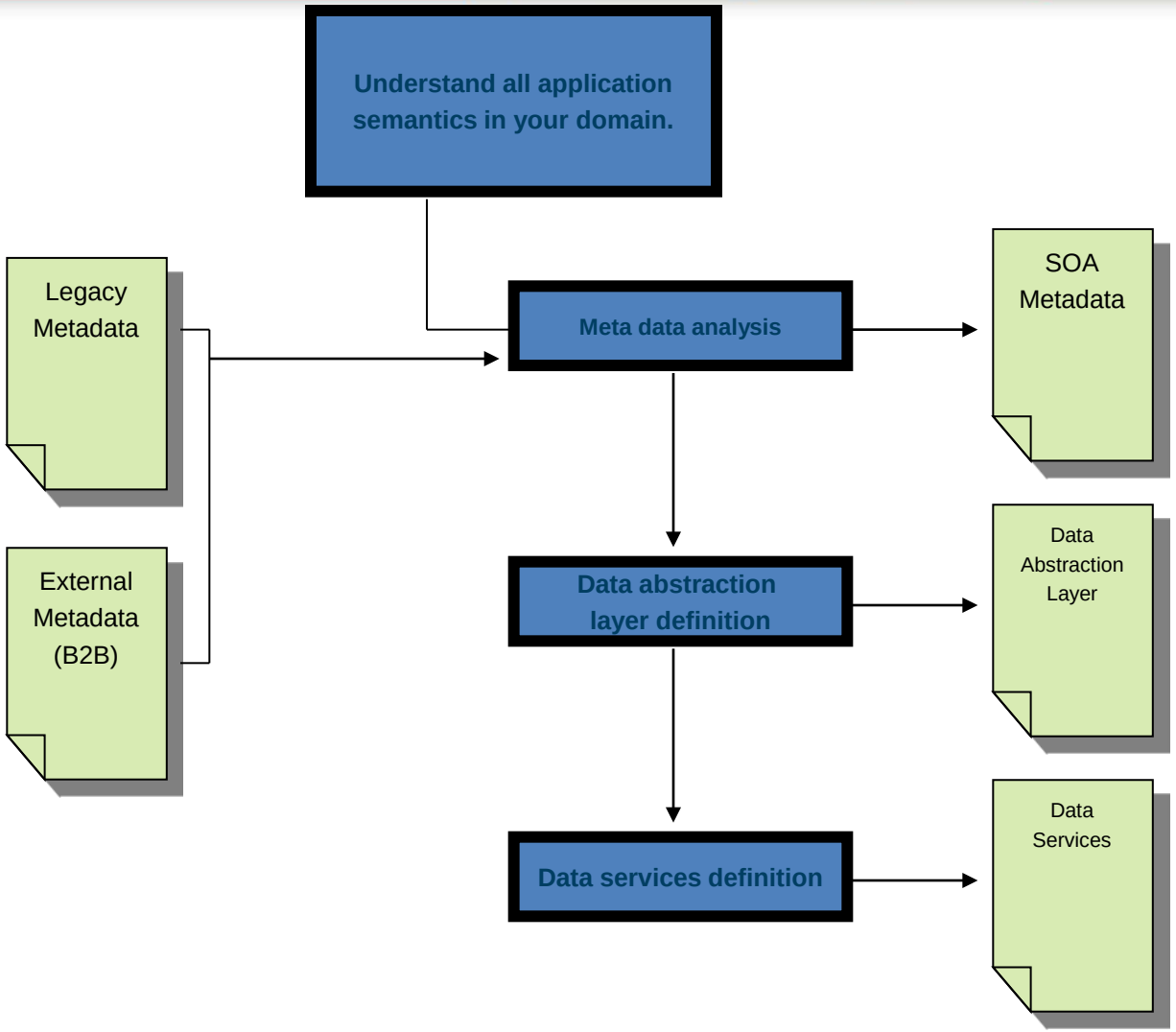
Source: Wipro



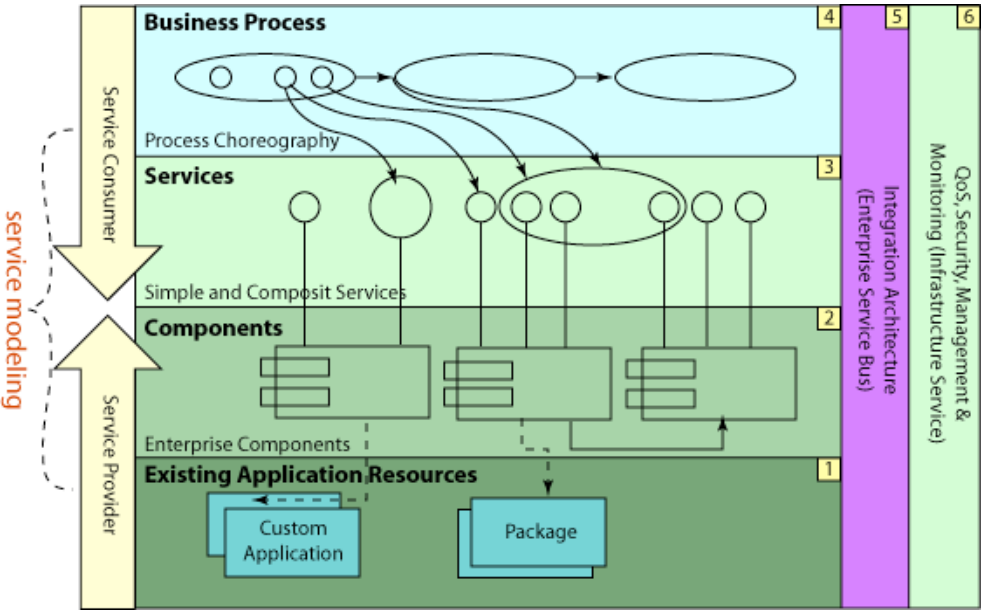
Understand:

- Business drivers
- Information under management
- Existing services under management
- Core business processes

Integration Success: Start with the Data

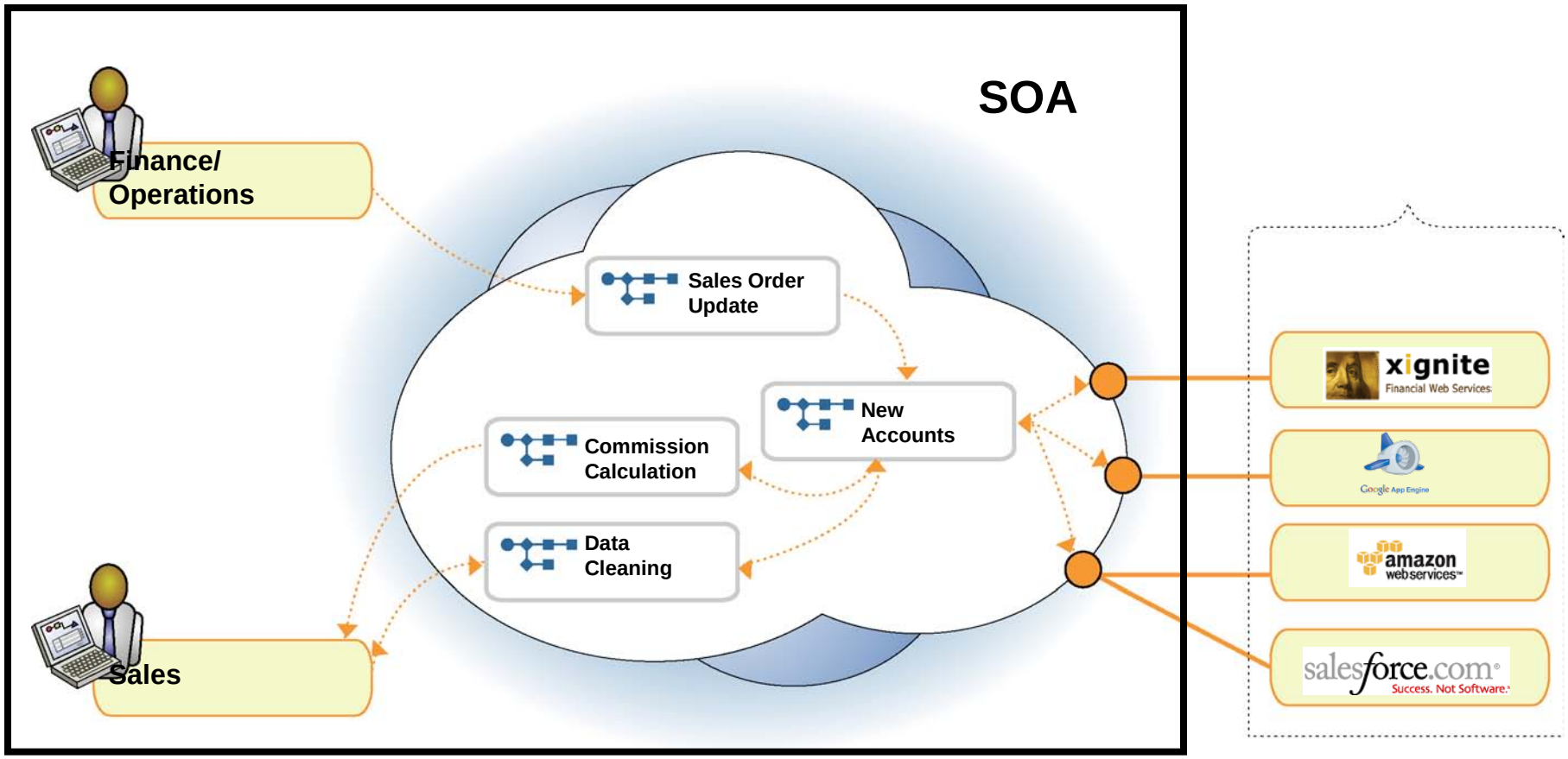


The Basic Concept



Source: IBM

- One can consider cloud computing the extension of SOA out to cloud-delivered resources.
- The trick is to determine which services, information, and processes are good candidates to reside in the clouds, as well as which cloud services should be abstracted within the existing or emerging SOA.


SOA
Finance/
Operations
Sales Order
Update
New
Accounts
Commission
Calculation
Data
Cleaning
Sales
xignite
Financial Web Services
Google App Engine
amazon
web services
salesforce.com
Success. Not Software.

Getting Things Done

- Cloud providers must integrate with existing enterprise systems to become more valuable.
- However, existing internal integration needs to exist to ensure:
  - Production and consumption of structured information
  - Semantic mediation
  - Security mediation
  - Service enablement
  - Firewall management
  - Transactional integrity
  - Unstructured data
  - Holistic management of the complete integration chain

REMEMBER, THERE ARE A FEW

- **Semantic and metadata management**, or, the management of the different information representations amount the external services and internal systems.
- **Transformation and routing**, or, accounting for those data differences during run time.
- **Governance across all systems**, meaning, not giving up the notion of security and control when extending your SOA to the global SOA.
- **Discovery and service management**, meaning, how to find and leverage services inside or outside of your enterprise, and how to keep track of those services through their maturation.
- **Information consumption, processing, and delivery**, or, how to effectively move information to and from all interested systems.
- **Connectivity and adapter management**, or, how to externalize and internalize information and services from very old and proprietary systems.
- **Process orchestration and service, and process abstraction**, or, the ability to abstract the services and information flows into bound processes, thus creating a solution

- **Scenario 1:** Simple Data Integration Between a SaaS System and an Enterprise System (A to B).
  - Most integration technologies work fine.
  - Focus on performance and semantic mediation.
  - Local or on-demand.
  - Don’t over pay, and don’t over engineer.

- **Scenario 2:** Sophisticated Data Integration Between SaaS Systems and Enterprise Systems (A to B to C).
  - Need to support complex integration patterns.
  - Need to provide scalability and performance.
  - Need lightweight transactional support.

- **Scenario 3:** Complex Data Integration Between any number of Cloud Systems and Enterprise Systems (A to B to C…Z).
  - May need to mix and match integration technology.
  - Support for full transactions.
  - Scalability is a problem to solve.

However, Not So Fast

- Not all computing resources should exist in the clouds.
- Cloud computing is not always cost effective.
- Do your homework before making the move.

THANKS!
Q & A

David S. Linthicum

david@bluemountainlabs.com

BLOGS

InfoWorld

Enterprise Efficiency

Forbes

WEEKLY PODCASTS

Cloud Computing Podcast

This Week in Cloud

COLUMNS

SOA World Magazine

Cloud Computing Journal

FOLLOW ME

on Twitter (@DavidLinthicum)