Cloud Computing
The Road Ahead

OpSource Webinar
Cloud Computing: The Road Ahead **- An SAP Perspective**

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KEY POINTS
Cloud Briefing

WHAT EXACTLY *IS* CLOUD COMPUTING?
Separating the Fog from the Clouds

Lots of confusion, more “fog” than cloud.

Typical of any new technology that has become popular (same with ERP, CRM)

People use same term to mean different things.

One analyst firm’s definition*: “a style of computing where scalable and elastic IT-enabled capabilities are provided as a service to external customers using Internet technologies”.*

Huh?

CLOUD COMPUTING DEFINITION
Key Components

Cloud computing is **Internet** based development and use of computer technology. It is a style of computing in which typically **real-time scalable** resources are provided **as a service** over the internet (Wikipedia)

Cloud Computing is an **emerging** IT development, deployment and delivery model, **enabling** real-time delivery of products, services and solutions (i.e., enabling cloud services) over the **Internet** (IDC)

DEFINING THE CLOUD
Key Groups with examples

Process-as-a-service

PayPal NAVITAIRE

Applications-as-a-service

SAP CrownPeak workday. YAHOO! amazon.com Google Apps

Symplified NETSUITE salesforce.com Cisco webex ebay

Platforms-as-a service

Google App Engine force.com ide Microsoft

Infrastructure-as-service

OpSource Cloud Enterprise-Class for Every Business hp amazon web services vmware EMC²

Sun NETWORK.COM

CLOUD COMPUTING CUSTOMER VALUE

4 Key Advantages

Cost Reduction

- Lower infrastructure (capital) costs
- Lower maintenance and energy costs

Elasticity / Scalability

- Capacity only when you need it
- Ability to handle expected or unexpected changes in load
- Achieve high business agility

Speed to Market

- Reduction of time to pilot and test projects
- Faster availability to customers

High Performance Computing

- Increased capacity from your current physical infrastructure
- Avoid provisioning (and paying) for the peak
- "Infinite" computing capacity on demand

ADVANTAGES OF THE CLOUD
From a Customer's Perspective

A customer can focus on *what* the services provide them, rather than *how* the services are implemented or hosted.

- Example: similar to an electrical utility or phone company, IT services like network security management, data center hosting, even departmental billing can now be easily delivered as a contractual service.

Quicker application development through:

- Web-centric architectures, distributed computing resources and new data models.
- Apps can be developed at radically lower cost compared to conventional approaches.

The economics of cloud computing

- Lower cost, quicker deployment, faster time to market (agility).

CLOUD PRINCIPLES
Four Pillars

Pillar	Business Elements
Elasticity not just Scalability	• A system's ability to dynamically and fluidly scale up and down, reallocate resources across consumers in a granular fashion. • Enhanced where encoded rules, policies and algorithms drive resource allocation. • Undermined where human intervention or interpretation required. • Elasticity essential to support dynamic business models based largely on modes of revenue generation focused on rapidly changing interaction models. • Reallocate resources across consumers without A) changing underlying technology architectures or B) the economics associated with the service • Raw scalability less important than elasticity
Delivery as a Service	Service provider: - Creates IT interfaces to access, configure and extend the service. - Optimizes back end environment to drive down cost. Consumer - Responsible for any additional development

CLOUD PRINCIPLES
Four Pillars

Pillar	Business Elements
Designed for delivery to external customers	New approach to application development. Global-class principles 1. Externally facing applications 2. Assumption of a hostile security environment 3. Service access by any device using Internet technologies
Layering and Combining Cloud Services	Consumers can access a single cloud service, or may use multiple services Must map interdependencies (e.g. data flows) where multiple services are used. Layered services will increase over next few years. • Optimized infrastructure service providers (security, single sign on, identity management) will be vital to your success.

TOP 5 PITFALLS
and How to Avoid Them

Threat	Risk	Risk Mitigation
Risk-Testing Risk	Hard to tell if Cloud Service Provider is mitigating key risks. Testing difficult to arrange and conduct	• Get a Tour • Create risk assessment criteria • Utilize software that integrates cloud-based applications
Data Location Risk	May not know where your data is being stored.	• Push your provider to specify data location (e.g. Amazon allows for specification of specific locations – East Coast, West Coast)
Data and Code Portability Risk	Once data put into system, difficult to get it out. Hard to get process, or code that executes the process from the provider.	• Review bulk data extraction and code copy options before signing the contract.
Data Loss Risk	Any system, or any provider can lose your data.	• Regular data backups • Fault tolerant systems
Data Security (Privacy) Risk	Others can access an enterprise's data more easily when it is stored externally rather than internally.	• Ensure backup • Use an Enterprise-class Cloud (e.g. OpSource Cloud is built on a multi-tier architecture for extra security; Virtual Private Cloud allows user to set their own level of public or private connectivity)

SAP'S STRATEGY

We will deliver closed loop business process optimization across business networks for companies of all sizes

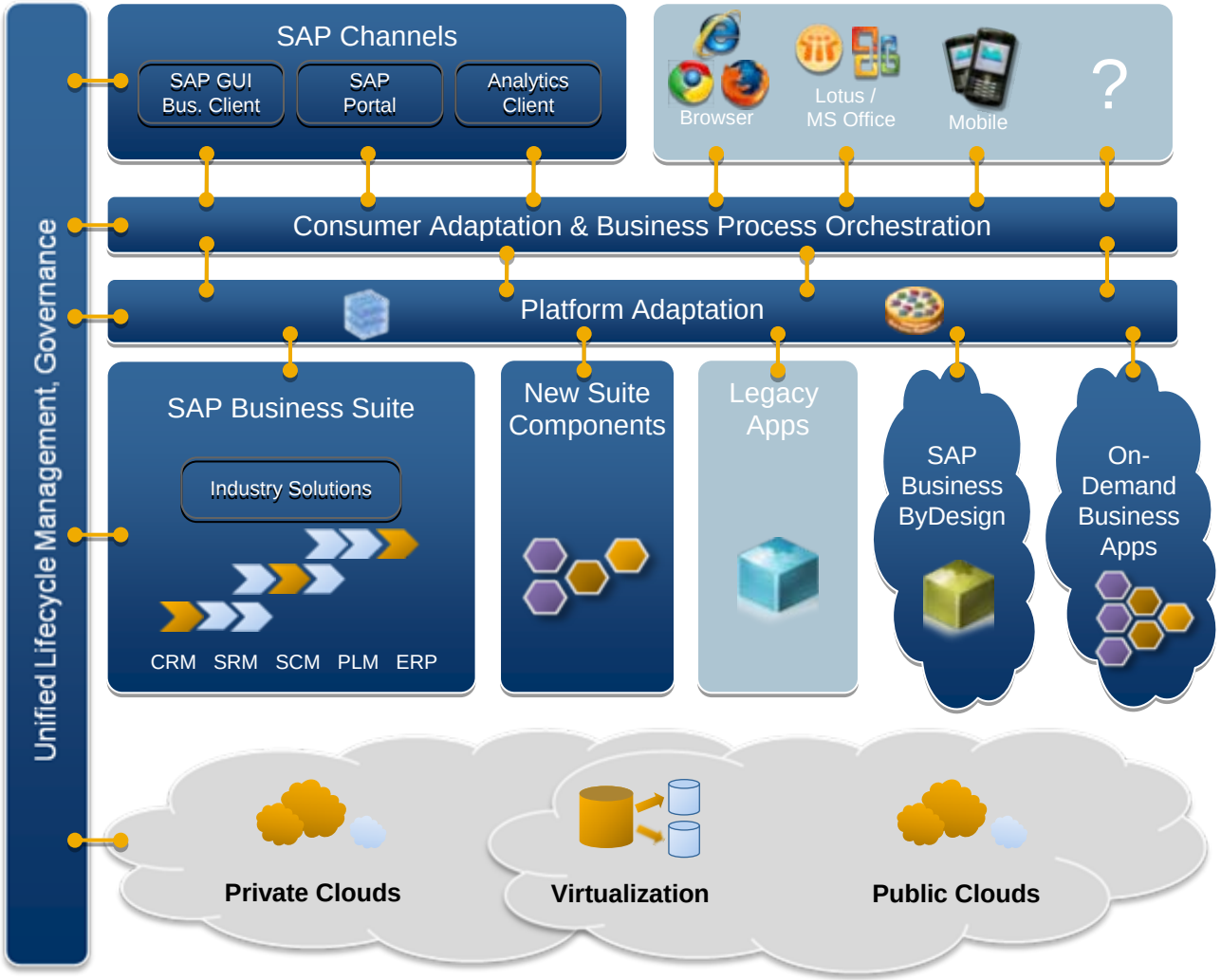
Solutions

- Best practices
- Own practices
- Best insights
- Timeless Software

Go To Market

- Volume Business model
- Line of Business relevance
- Relationship-driven model
- Value delivery

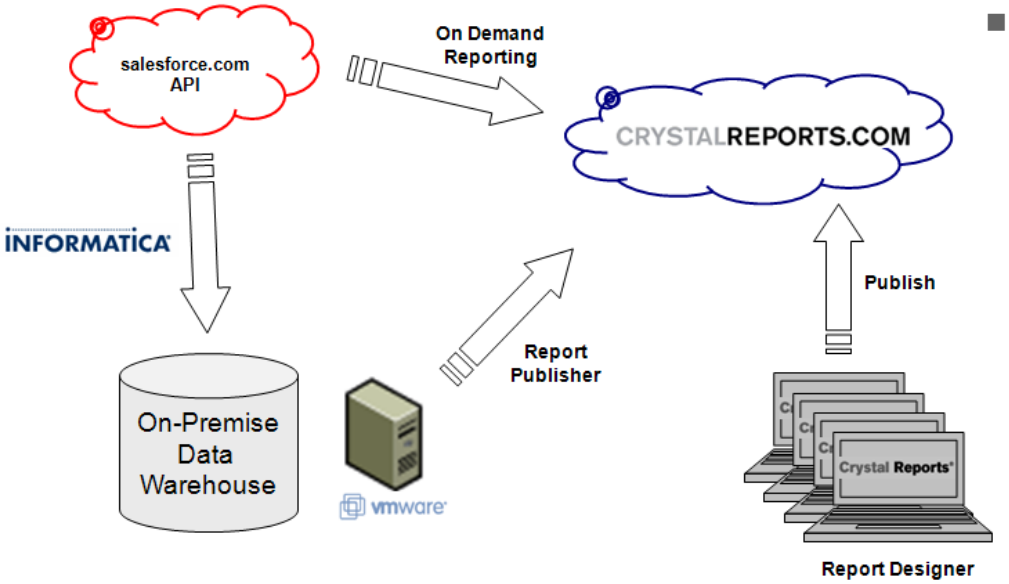
SAP's Technology Strategy: Timeless Software
Taming Change: Architecting for Non-disruptive Evolution



1. Business network service clouds powered by Business Suite and Business Objects
2. Complementary and integrated cloud-based services
3. Mission-critical SME suite: Business ByDesign
4. All deployable elastically across private and public cloud infrastructure, enabled by virtualization

Customer Success: ADP

- Powerful Solution
  - 1,700+ users
  - Provides sales dashboards throughout the organization
  - Combined SaaS and on-premise products for complete solution
  - crystalreports.com (Business Objects) – SaaS report sharing, scheduling, and distribution
  - Cloud data and on-premise data sources



- Results
  - 10% improvement in team member coverage
  - 15% improvement in data quality
  - Estimated 30 min/day average time savings for field sales leaders
  - Estimated 1 hour/day average time savings for divisional project managers.

SAP CLOUD COMPUTING
Closing Remarks

CLOUD A REALITY

- Tectonic plate shift has started

WE OFFER PART OF THE SOLUTION

- On-Demand solutions in Business Intelligence, ERP

PARTNERS COMPLETE IT

- Cloud specialists like OpSource

A UNIQUE OPPORTUNITY

- There will be winners and losers coming out of this economic crisis.
- Cloud Computing may offer you a catalyst to win over your competition
- Get smart, get involved, get started.