Siete pronti per un pianeta più intelligente?

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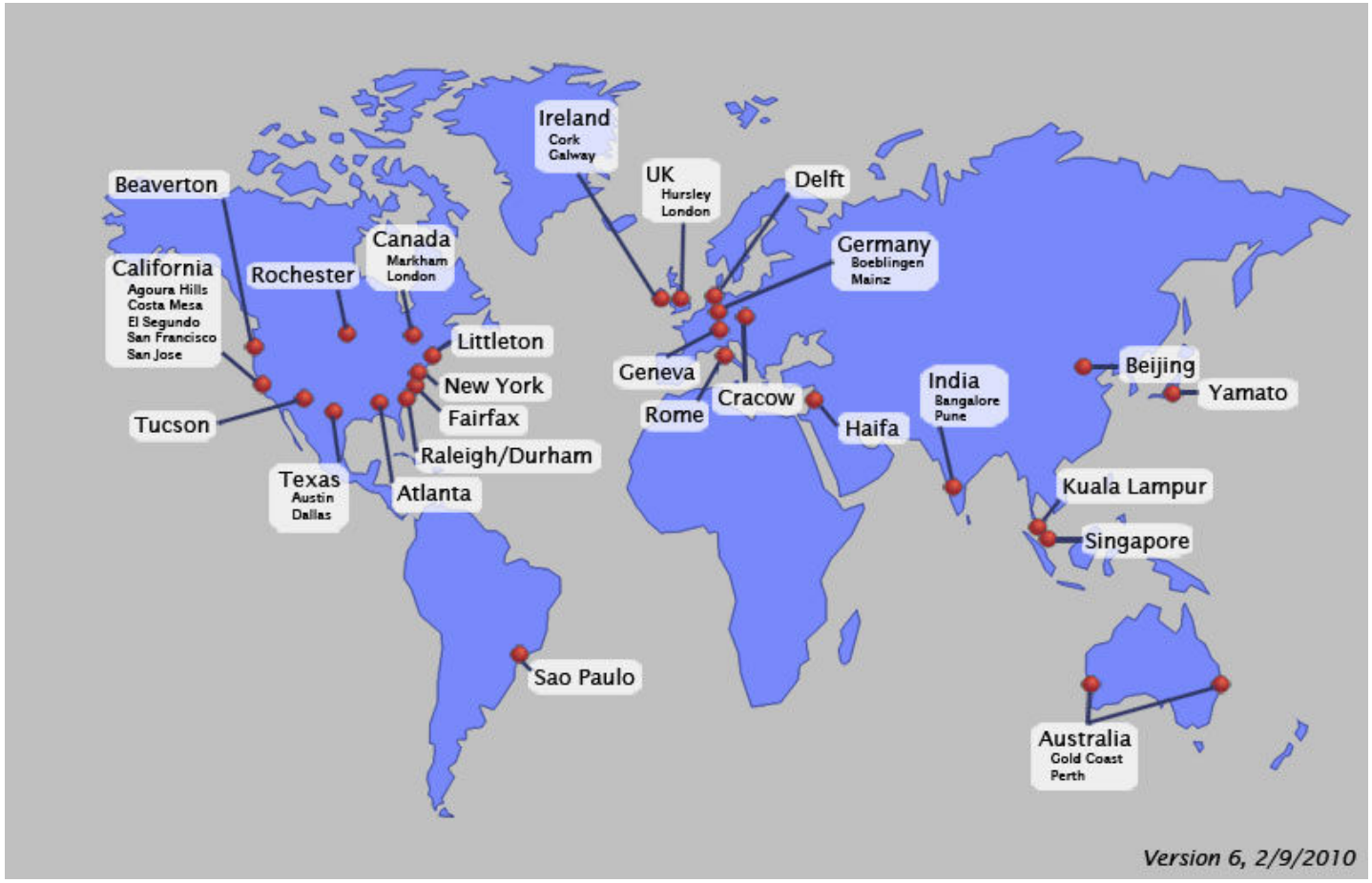
Cloud computing per la PA:
scenario complessivo e punti di attenzione

FORUM PA 2011
Roma, 9 - 12 maggio

IT Mission: Tivoli's IT needed to become smarter …

- **IT footprint expanded to 38 labs through growth and acquisitions, creating inefficiencies, increased capital & operational expense**
- **The growing complexity of our IT systems demanded that sprawling processes become standardized services that are efficient, secure and easy to access**
- **A Service Management System to provide *visibility, control and automation* across IT and business services to ensure consistent delivery**
- **New model consumption and delivery for IT services**

Tivoli Test & Development



➡ Geographically dispersed team: 38 Labs, ~4000 team members

Tivoli Cloud Services: Mission Overview

- **Reduce Tivoli IT Cost** with consolidation and reduction of physical infrastructure
  - *Consolidate physical labs*
  - *Move existing servers into virtualization pools*
  - *vCells and vCluster as the default "server" models, primarily using KVM and VMware*

- **Automate and orchestrate** end-user services and mitigate schedule risk
  - *Provide predictable, rapid access to reserve, provision and deploy servers*
  - *Deliver a federated services catalog containing ITCS compliant images*
  - *Give end-users tha ability to manage images that can be certified, stored, centralized and published*

- **Adopt Tivoli solution** to manage internal cloud
  - *Become showcase environment to help drive client value*
  - *Leverage experience with internal cloud environment to improve product offerings*

IBM Tivoli Development Private Cloud

Business Background

- By YE08 IT Footprint had expanded to 38 labs through growth and acquisitions, creating inefficiencies, increased capital & operational expense
- ISM capability not being used in a standard way to internally manage resources and IT services
- Increasing pressure to reduce capital and operational expense

Solution Overview

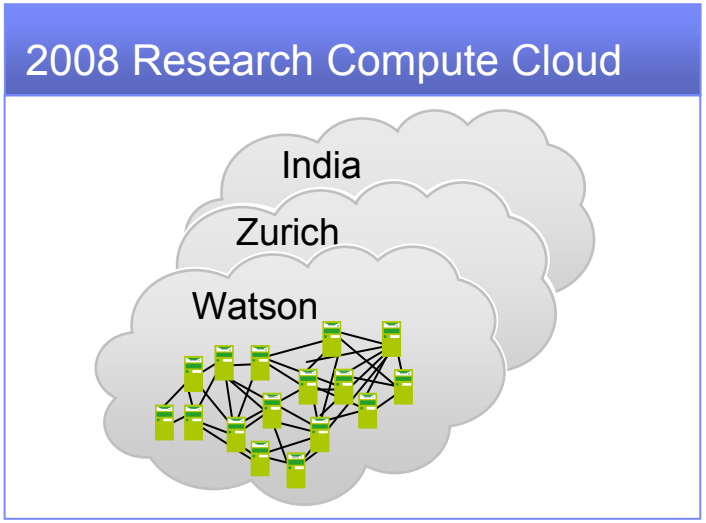
- IT consolidation, virtualization and automation transformation program
- Private Development Cloud, Tivoli Service Automation Manager and IBM Integrated Service Management for visibility & control

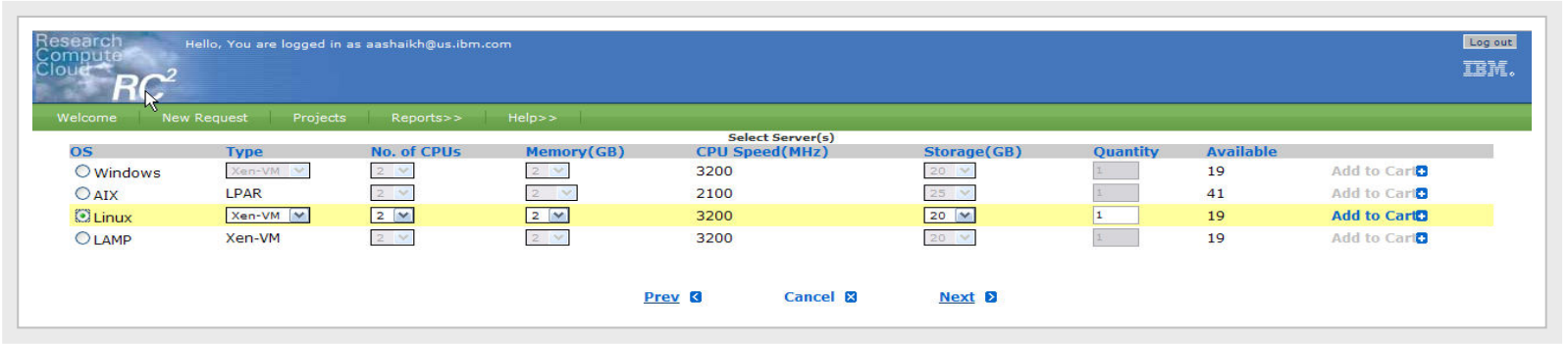
Cloud Business Benefit

- During 2009, avoided over 40% in capital and 15% in expense through consolidation and virtualization
- Elastic infrastructure able to meet the dynamic needs of an agile focussed development organisation
- Virtualised infrastructure running an average of 60% utilization from an original average of 5-9%
- Reduced time to provision a server from 12 hrs to ~15mins
- Leveraged experiences to assist sales engagements and executive briefings
- 1055 servers have been relocated, 280 ‘scrapped’, and 174 virtualized

IBM Research Computing Cloud (RC2)
A living lab to advance Research strategies

- Provides self service “on demand” delivery solution for research computing resources
- Zero touch support for the full life cycle of service delivery
  - Order creation
  - Approval process
  - E-mail notification
  - Automated provisioning
  - Monitoring





Adoption Program (TAP) Greenfield Cloud Deployment

What is TAP?

- IBM's new model for managing technology to drive innovation for our internal transformation & growth

Pain Points:

- Responding to rapidly changing business needs is difficult
- Deployment of infrastructures is mostly manual, slow, tedious, labor intensive, and error prone
- Servers are not available quickly and cost effectively for innovation

Solution:

Tivoli Provisioning Manager:

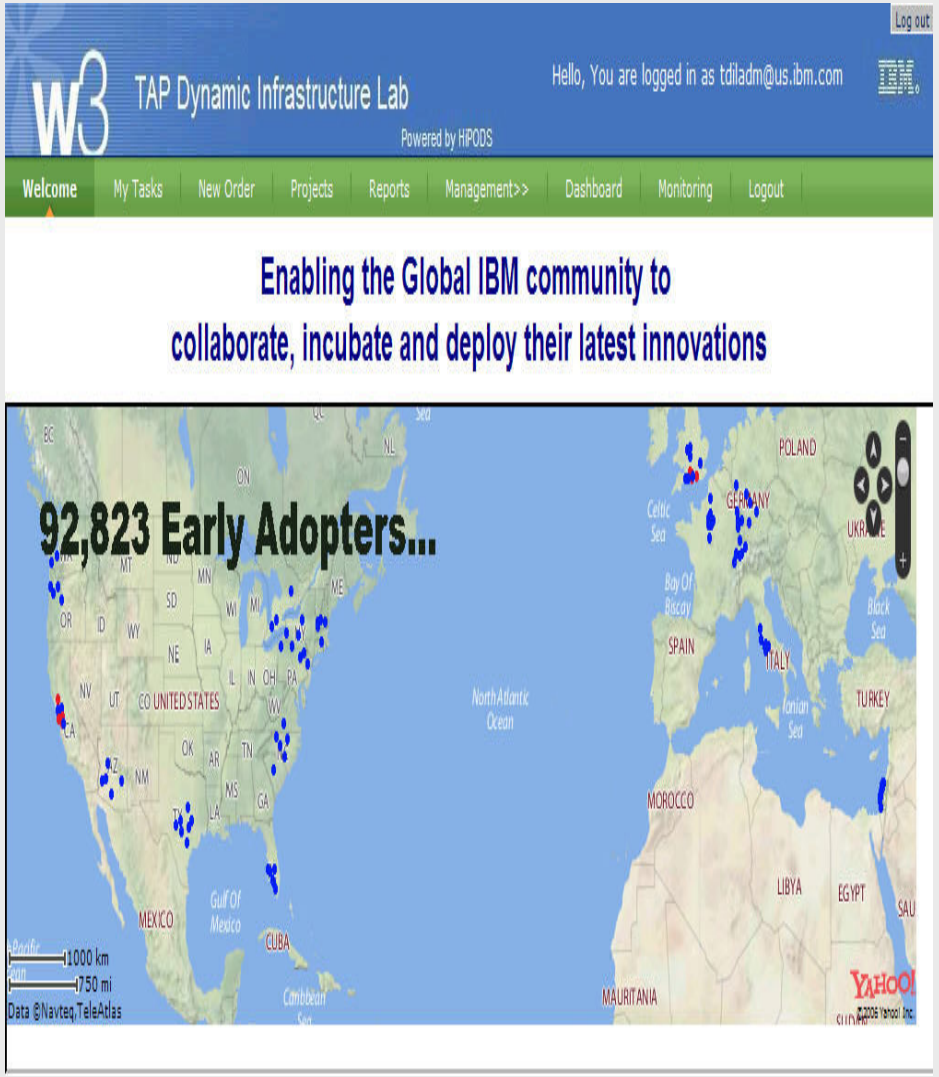
- Automated provisioning of Servers, Operating Systems and Middleware and Storage.

IBM Tivoli Monitoring:

- Integrated monitoring of performance and availability

WebSphere Portal and Process Server:

- Centralized, standard, and reliable interface



Smart Analytics Cloud in the IBM corporation

Our commitment to informed decision making led us to consider private cloud delivery of Cognos via System z, which is the enabling foundation that makes possible ***+$20M savings over 5 years****.* -IBM CIO Office

IBM's deployment is the world's largest private cloud computing environment for business intelligence and analytics that will provide more than 200,000 IBMers with the ability to extract information from around the world to make smarter decisions through information empowerment – no matter where the data resides

IBM Blue Insight results:

- Consolidating +20 multi-product, departmental BI deployments to Cognos 8 BI on System z
- Realizing value from +60 data sources across IBM representing +1PB of data
- Deploying private cloud self service to support +200,000 named users across our global workforce
- Elasticity in a shared server model supporting SLAs for diverse tenants; Speed to value and reduced capital spend (26 weeks to 2 weeks)

8

Anche centinaia di Clienti IBM hanno cominciato a trarre benefici dalla trasformazione verso modelli di delivery Cloud.

SK telecom

ING

Panasonic
ideas for life

NEDBANK

PayPal

中国·东营
China DongYing

U.S. AIR FORCE

Pike County Schools

CALL&CALL

LA PERLA

LINCOLN Trust

UNIVERSITÀ DEGLI STUDI DI BARI ALDO MORO

Kantana

Cloud Computing - NIST* Definition

(*National Institute of Standards and Technology)

Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.

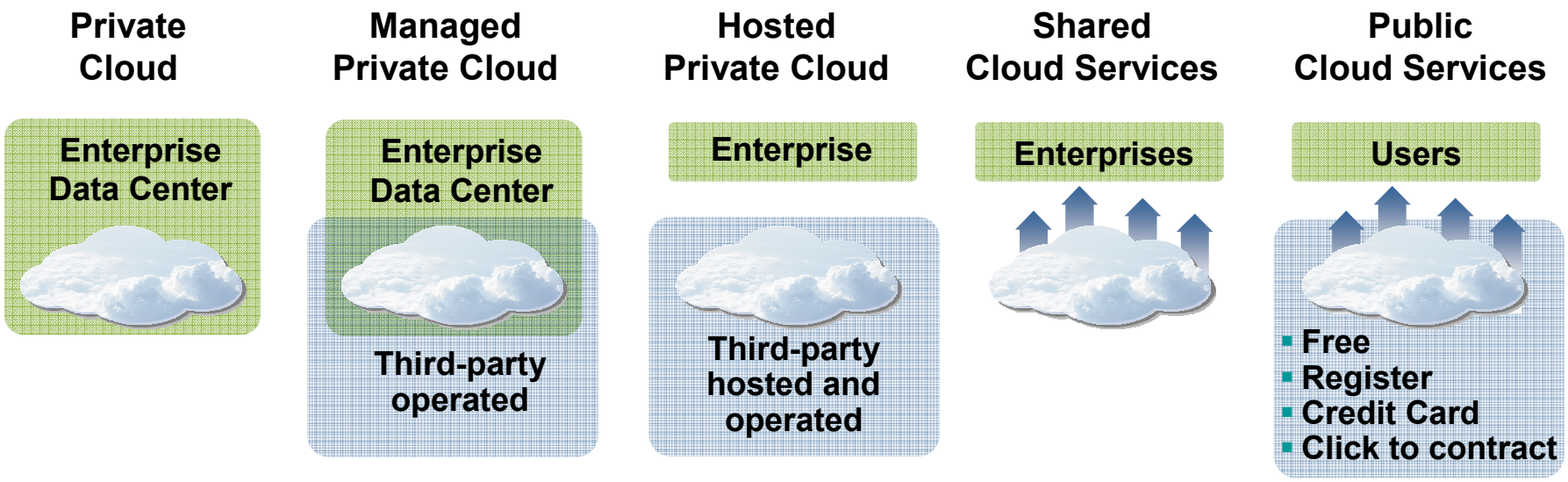
but ….. this is a

technology centric definition

Cloud Computing – A Business Value

Cloud computing is a model for ***enabling cost effective business outcomes through the use of shared application and computing services***. The value …. if possible …. is better economics in the execution of business processes.

Spectrum of Deployment Options for Cloud Computing



Private
IT capabilities are provided "as a service," over an intranet, within the enterprise and behind the firewall

Public
IT activities / functions are provided "as a service," over the Internet

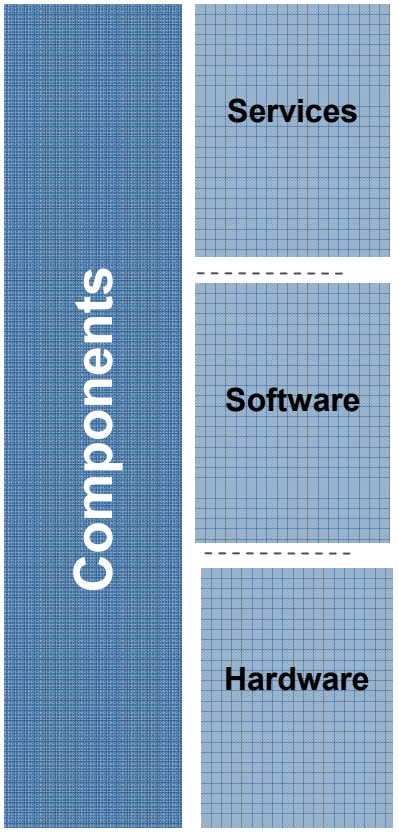
Hybrid Internal and external service delivery methods are integrated

Cloud Computing – Service Models

Business Process, Software, Platform and Infrastructure Services and Components to Build Public and Private Clouds

Cloud Services	
Business Process as a Service (BPaaS)	Customers consume ***business outcomes*** (e.g. payroll processing, HR) by accessing business services ***via Web-centric interfaces*** on ***multi-tenant and shared*** infrastructures ***without the need to manage or control*** the underlying resources
Software as a Service (SaaS)	Customers use ***applications*** (e.g. CRM, ERP, e-mail) from ***multiple client devices through a Web browser*** on ***multi-tenant and shared*** infrastructures ***without the need to manage or control*** the underlying resources
Platform as a Service (PaaS)	Customers use ***programming languages, tools and platforms*** to ***develop and deploy applications*** on ***multi-tenant and shared*** infrastructures ***with ability to control deployed applications and environments without the need to manage or control*** the underlying resources
Infrastructure as a Service (IasS)	Customers use ***processing, storage, networks,*** other computing resources ***with ability to rapidly and elastically provision and control*** resources to ***deploy and run software and services without the need to manage or control*** the underlying resources

Cloud Components



The Cloud Value Proposition is Around Operational Efficiency and Business Transformation

Cloud Market Trends 2011 : "To What Extent Do the Following Aspects of the Cloud Value Proposition Appeal"?

IMPROVED OPERATIONS

- 65% believe cloud will drive down the cost of running business applications
- Infrastructure, testing, and SaaS are expected to cost much less than traditional outsourced services by at least 30% to 60%
- 60% of business executives also expect cloud service delivery cycles to speed up application implementation

INNOVATVE BUSINESS MODELS

- Business leaders, in particular, believe that cloud-based delivery models will radically change service provision and drive spending on cloud investments
- 55% believe cloud enables them to focus on transforming their business and make their processes leaner, faster and more agile

Source: "Cloud will Transform Business as We Know It: The Secret's in the Source", Hfs Research, and the London School of Economics, December, 2010

Al di là della tecnologia numerosi punti di attenzione

- Organizzazione e processi
- Leggi e Regolamentazioni
- Governance
- Ciriticità degli “Asset informativi”
- Privacy
- Portabilità
- Interoperabilità
- Sicurezza
- Availability
- Performance / Latenza
- Service Level Agreement

IBM sta sviluppando intorno al modello Cloud un ecosistema aperto all'integrazione ed in supporto degli standard

THE Open GROUP
Making standards work®

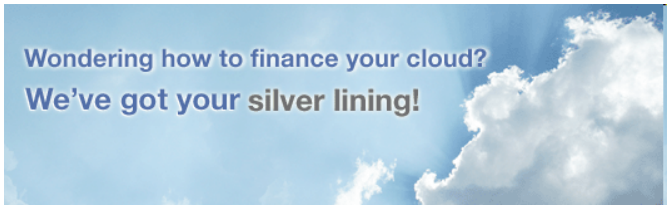
Cloud Computing

IBM's Reference Architecture for Creating Cloud Environments

Cloud Standards Customer Council

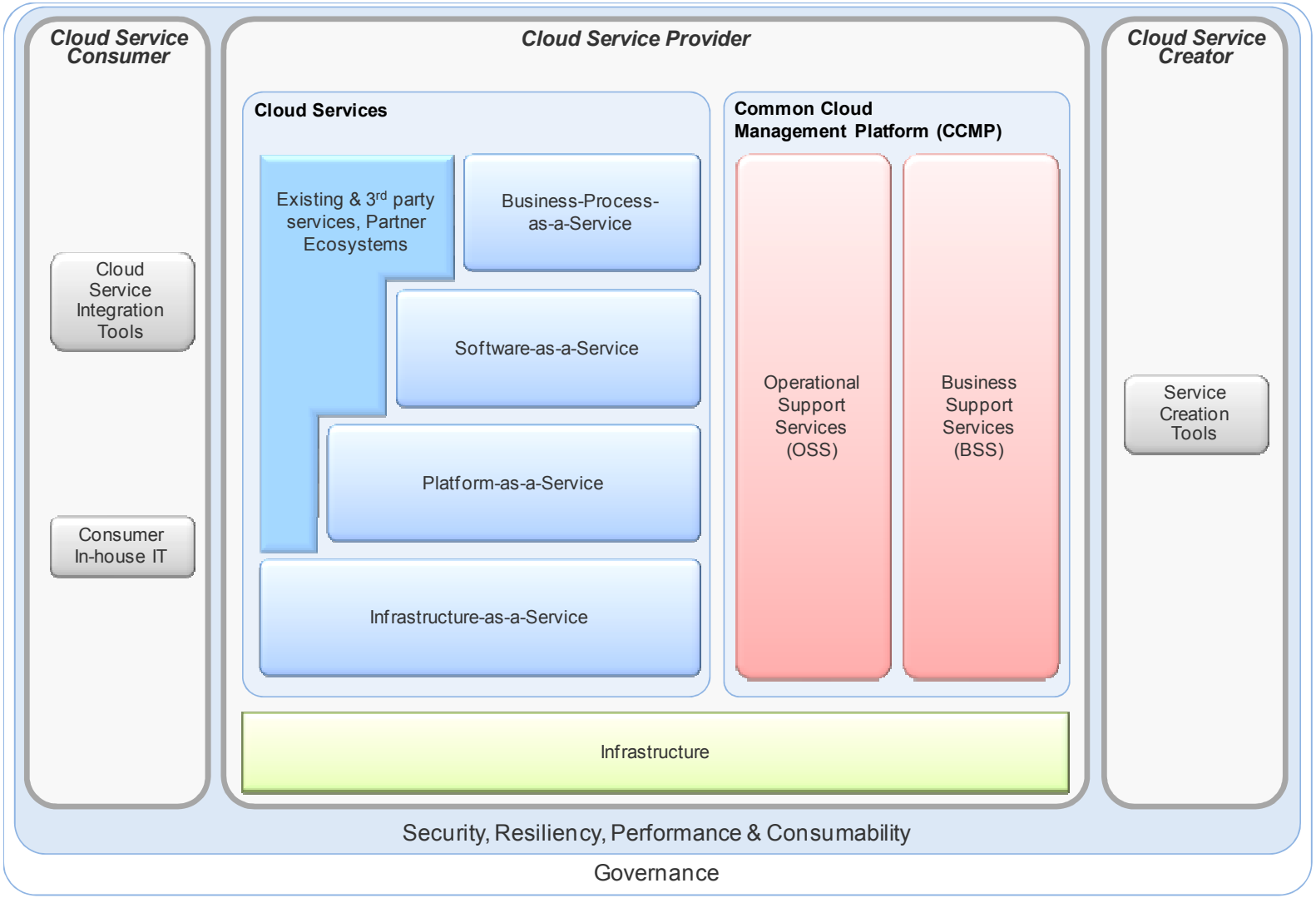
Visit the www.cloudcustomercouncil.org

Find out more at ibm.com/cloud/partner

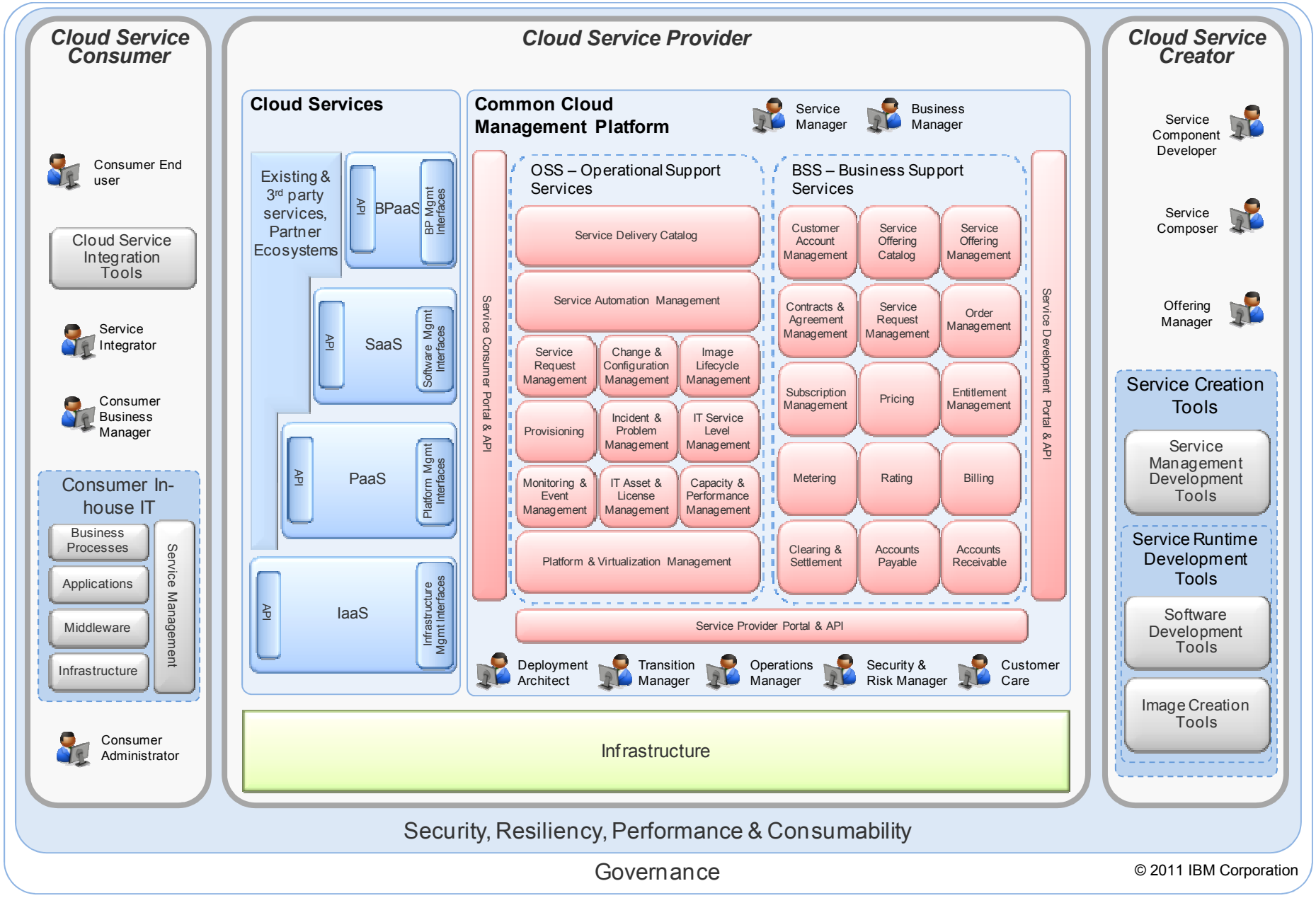


- Visit the IGF Cloud website

Cloud Computing Reference Architecture (CCRA) – Overview



Cloud Computing Reference Architecture – Management Platform



Struttura e contenuti della CCRA IBM

There are two deliverables for each work product of the RA

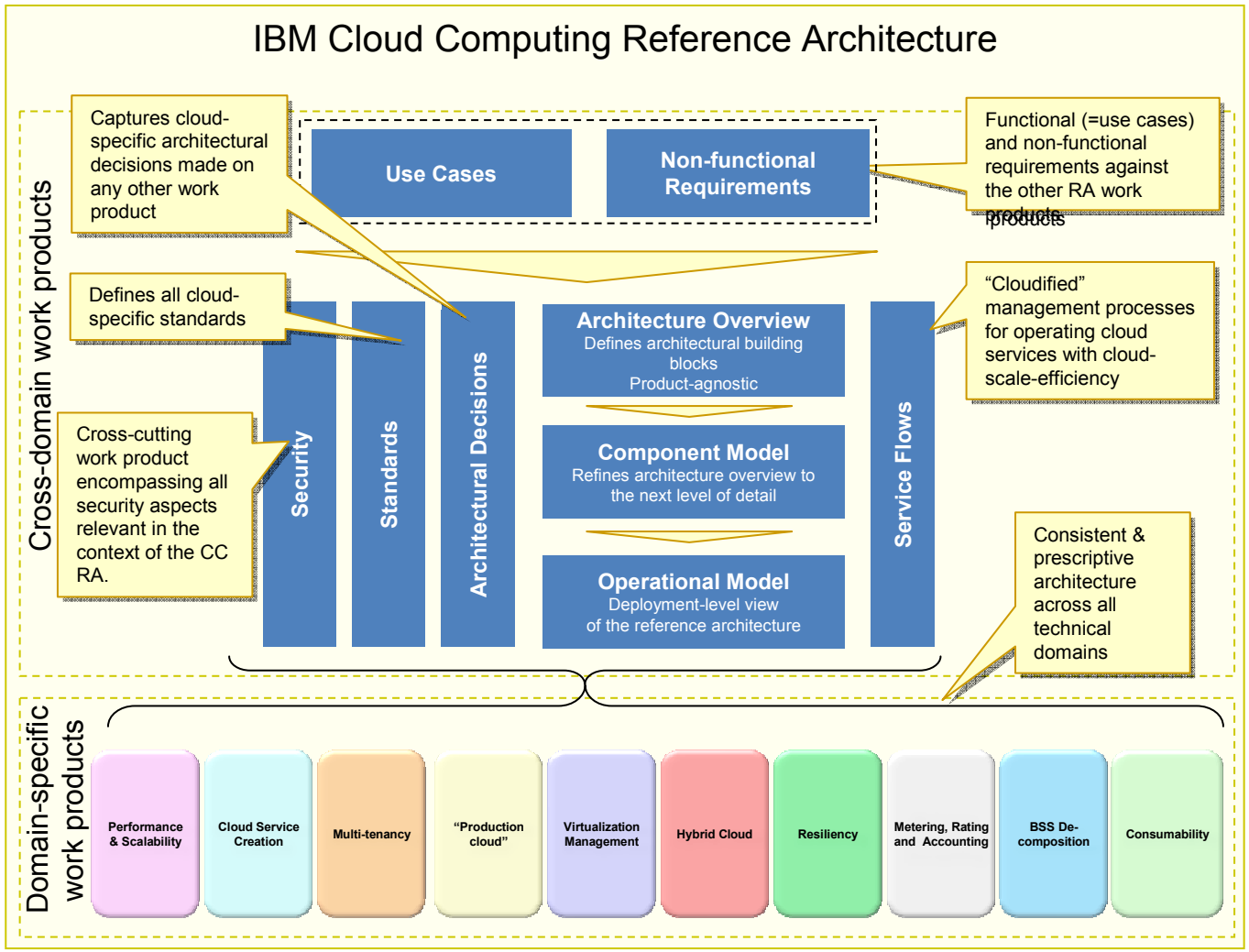
- **Document**: Detailed description of the work product, important for in-depth work
- **Presentation**: Summary of the document, for simplified consumption and quick start

The RA is defined according the Unified Method Framework (UMF)

→Simplifies field adoption since all IBM field architects attend UMF training by default

Each work product includes one or more "applied patterns"

- An applied pattern illustrates how the respective work product could be used / was used in a specific implementation



Lo sviluppo della CCRA è continuo, beneficia delle esperienze interne e di progetti clienti e guida lo sviluppo delle offfering e di nuovi progetti

Development led by the IBM Cloud Computing Architecture Board

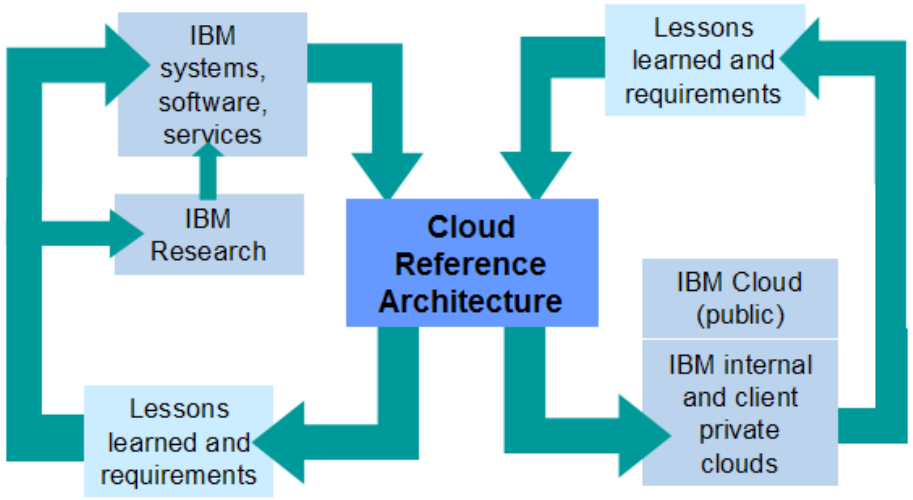
- Comprising technology leaders from IBM Research and IBM's software, systems and services organizations
- >50 of IBM's top cloud computing experts represent the core team

Derived from extensive client interaction combined with IBM's extensive capabilities and experience in building enterprise-class IT systems.

The CC RA provides specifications for

- the physical components of a cloud implementation (network, compute, storage, virtualization)
- Software components required to run management
- Operational processes
- Governance policies tailored for the environment or enterprise.

A process of continuous improvement helps ensure that the reference architecture is both responsive to changing client and security requirements and incorporates technology developments via IBM products and evolving design specifications.



L'offerta di prodotti IBM Tivoli è stata integrata e copre le funzionalità della Cloud Managemnt Platform

ISDM — IBM Service Delivery Manager

TSAM

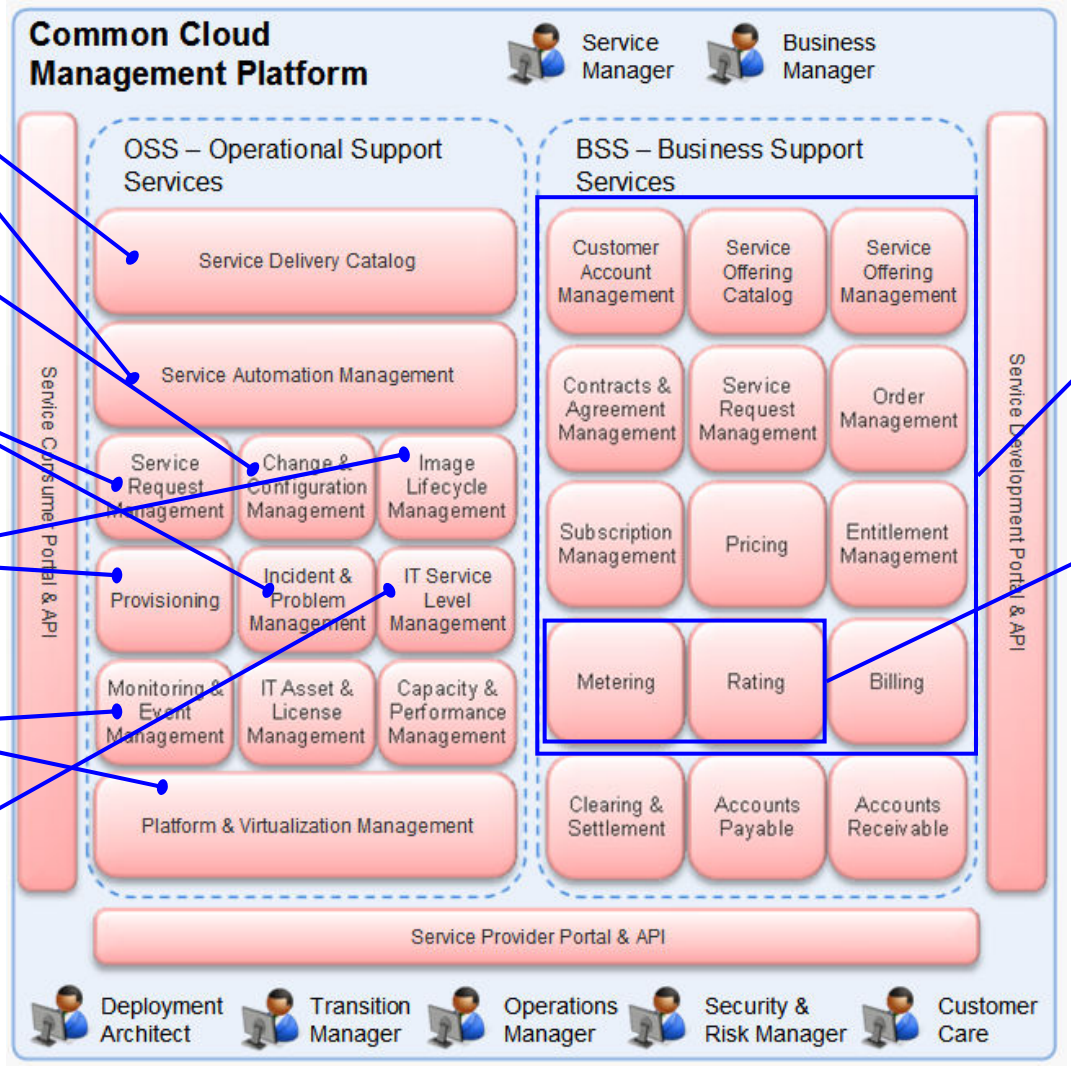
CCMDB

TSRM

TPM

ITM

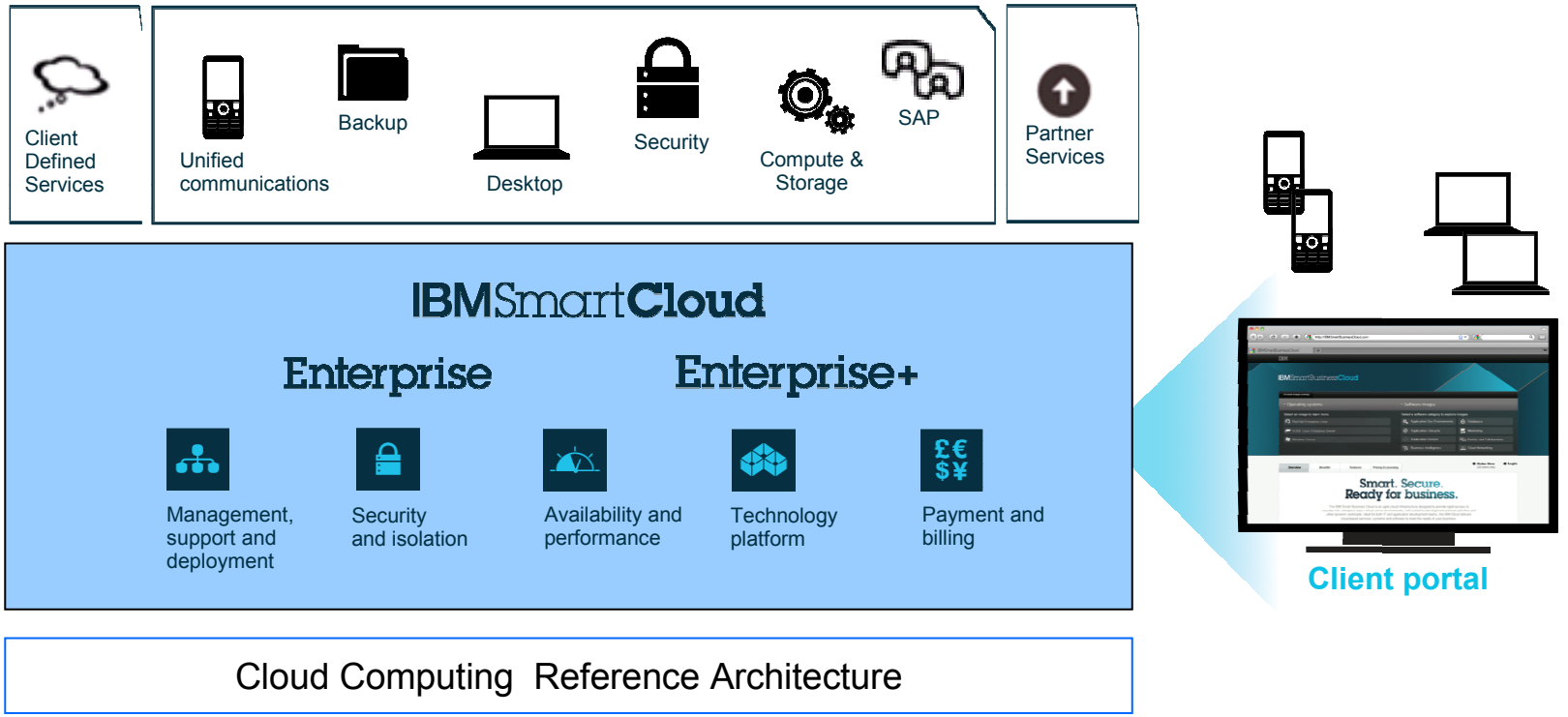
TNSQM



TSRM-SP — Tivoli Service Request Management for Service Provider

TUAM — Tivoli Usage & Accounting Management

L'offerta IBM SmartCloud è un'implementazione robusta e sicura per il delivery di servizi Cloud per clienti Enterprise



IBM SmartCloud offre una selezione di caratteristiche che si adattano alla diverse esigenze tecnologiche, di sicurezza e di resilienza.

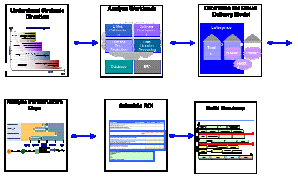
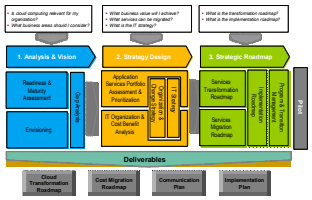
Management, Support and Deployment	☐ Hardware	☐ Hypervisor	☐ Operating System	☐ Middleware	☐ Application	☐ Process		
Security and Isolation	☐ Security Policies and Services	☐ Logical and Physical Isolation	☐ Integrated Backup and Recovery	☐ Dedicated Client Connection from Data Center	☐ Location Dexterity			
Availability and Performance	☐ Rapid Provisioning Time	☐ High-End Scalability	☐ SLA 99.5%	☐ SLA 99.9%				
Technology Platform	☐ x86	☐ Tiered Storage	☐ Power	☐ Linux	☐ Windows	☐ AIX	☐ VMWare	☐ KVM
Payment and Billing	☐ Pay as You Go: Hourly	☐ Pay as You Go: Monthly	☐ Managed Service Options					

L'offerta Cloud IBM indirizza diversi WorkLoad con modelli di delivery sia pubblici che privati insieme a servizi di disegno e realizzazione

IT Tranformation: knowledge, control, security

	Compute, Dev & Test	Desktop	Infrastructure and Storage	Security	Collaboration	SOA & WebSphere	Analytics	Business Services
Smart Business on the IBM Clod	IBM Smart Cloud	IBM Smart Business Desktop	IBM Managed Backup Tivoli Live	IBM Managed Security	LotusLive iNotes	IBM SOA Sandbox		IBM BPM Blueworks
Smart Business Cloud	IBM Smart Business Development and Test Cloud	IBM Smart Business Desktop Cloud	IBM Smart Business Storage Cloud	IBM Managed Security			IBM Smart Analytics Cloud	
Smart Business Systems	IBM CloudBurst	Virtual Desktop for Smart Business	IBM Information Archive IBM Service & Application Manager for Smart Business			WebSphere CloudBurst WebSphere Cast Iron	IBM Smart Analytics System	

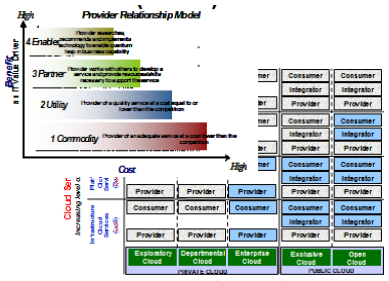
In particolare i Servizi di Consulenza permettono di condurre assessment approfonditi ed aiutare i nostri clienti a definire la migliore strategia di adozione del Cloud

3–4 wks	**Infrastructure Strategy & Design Services for Cloud**		• 2-day structured workshop & off-site work/analysis to identify where/how cloud can drive business value • Develops value proposition for cloud in the enterprise • Using research tool, identifies priority of workloads to migrate to cloud; Optionally create ROI for selected workload • Assess environment to determine readiness, strengths & gaps • Builds strategy, plan, and cloud adoption roadmap
1 wks	**Cloud Security Strategy Roadmap**		• Identify/prioritize cloud computing scenarios for specific security requirements • Helps the customer build a security roadmap for risk mitigation • Workshops about Education and guidance on cloud security concerns
4 wks	**Cloud Security Assessment**		• Evaluates existing cloud security infrastructure against industry best practices • Develops maturity ranking of existing security posture • Provides recommendations on action items for addressing identified issues
4-16 wks	**Strategy & Change Services for Cloud Adopters / Providers**		• For providers, defines business and operational strategy for being a cloud provider, including relevant business model, operating strategies, & implementation roadmap • For adoption, helps clients understand which applications / business processes they may cloud-consume • Recommends pilots and roadmap to align with business strategy

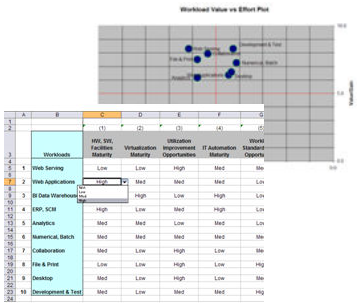
La metodologia di Cloud Infrastructure Strategy & Design facilita la valutazione dei workload più adatti ai diversi modelli di servizio e di delivery nel contesto del cliente e definisce la roadmap di adozione

Strategic Alignment → **Cloud Opportunity identification** → **Current It Envrionment Assessment** → **Prioritization of IT initiatives**

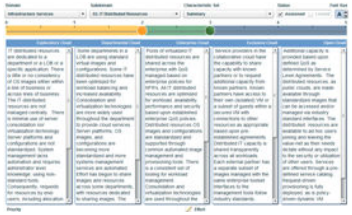
- Review current IT and business environment
- Introduce cloud concepts and analysis framework
- Determine IT provider relationship profile
- Review IT priorities



- Identify potential cloud opportunity areas
- Determine desired cloud targets
- Assess potential cloud workloads



- Review overall IT readiness for cloud
- Analyze current IT environment and the future requirements to support cloud
- Define gaps in current IT capabilities



- Assign priority and estimated effort to closing each cloud-related IT gap
- Cloud computing opportunity analysis
- Cloud readiness assessment report
- High-level cloud road map