



Cloud Computing: Sharing the Experience

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Moscow, 25.06.2015

Deutsche Telekom Group




Consulting
DETECON

We make ICT strategies work

Cloud computing: sharing experience

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- 2. Cloud computing intro
- 3. Detecon experience

Detecon's strategy and management consulting services enhance the value creation chain at Deutsche Telekom.



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Deutsche Telekom key
accounts

Detecon, the
management
consulting unit of
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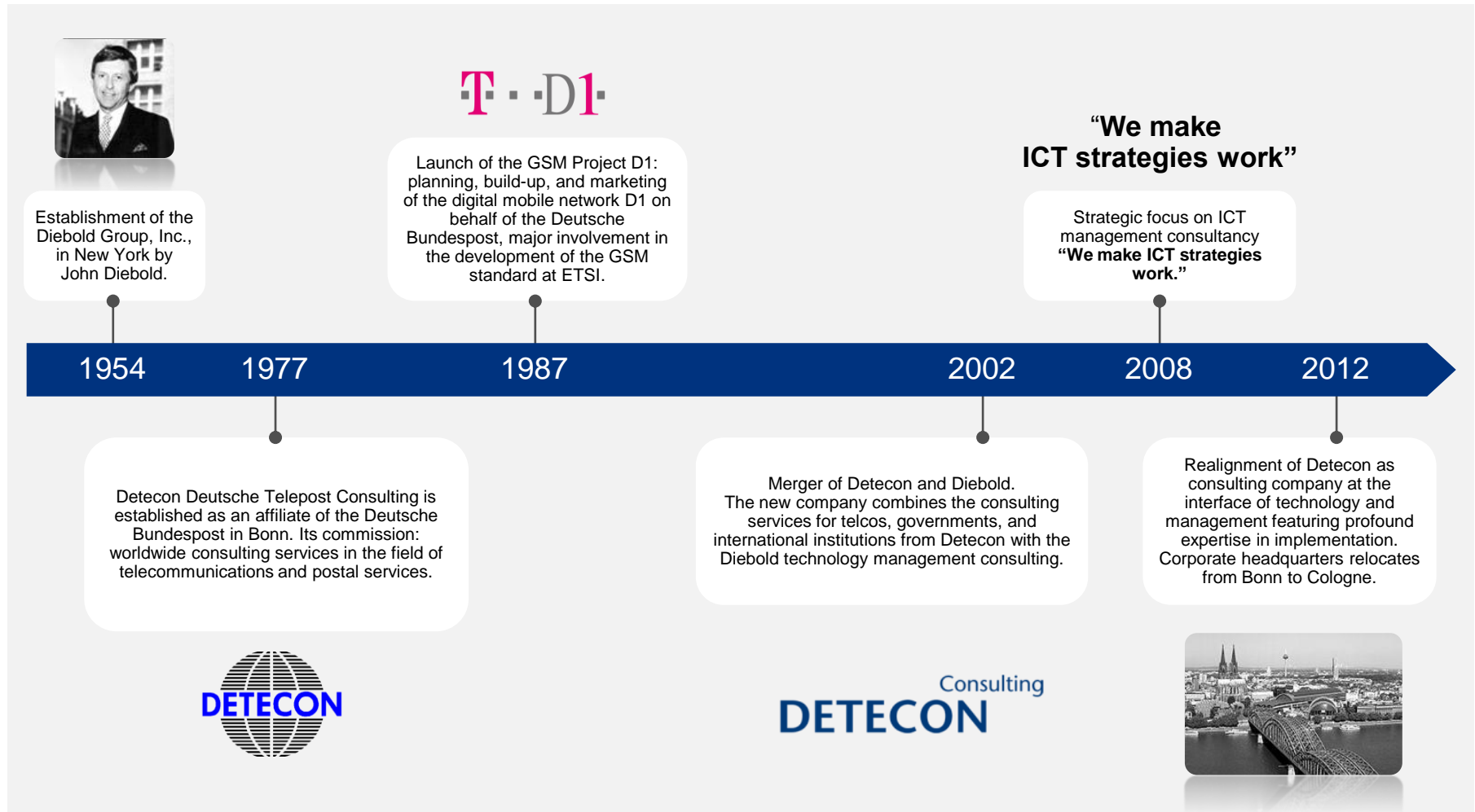
T . .

T . . Systems .

Deutsche Telekom in Numbers

- Present in 50 countries and employing 230,000 worldwide
- No. 1 on the German market: TC, mobile, IT
- Own computer centers and networks worldwide
- €58.2bn in turnover
- About 2m marketed workplace systems
- > 141m mobile services customers
- > 32m fixed network customers
- > 17m broadband customers
- About 3m TV customers (IPTV)

60+ years of ICT experience.



In-depth consulting expertise within the ICT ecosystem assures holistic consulting for our clients.

Our Consulting Portfolio

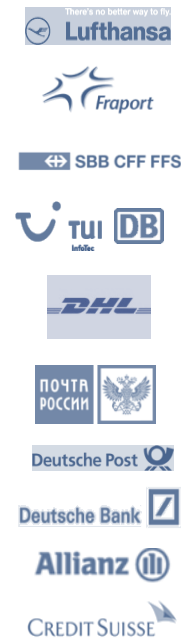
- Enterprise Architecture Management
- Application Management & Advisory
- Transformation & Restructuring
- Organization & Business Process Management
- IT Infrastructure
- IT Strategy & IT Efficiency
- Financial Management
- Supply Management
- HR Management
- IT Risk, Compliance & Security
- Network Plan, Build, Run & Efficiency
- Strategy, Innovation & Partnering
- Product Development, Launch & Commercialization
- CRM & Sales

Our Industrial Expertise

Pharma & Healthcare Companies



Service Companies



Industry Companies



Telco Companies



Our success: global sharing of knowledge and experience.

Detecon Branch Offices



Experienced, international, competent!

Consulting from the strategy to realization – seamlessly, in collaboration with our clients, worldwide.

Data & Facts

- **> 11,000 projects** realized worldwide
- **60 years** of market experience
- **1,100 associates** in our offices from Beijing to San Francisco
- Clients in more than **165 countries**
- Colleagues from over **40 countries**

With our locations in Moscow and Almaty we are in close proximity to our customers.

Our Customers

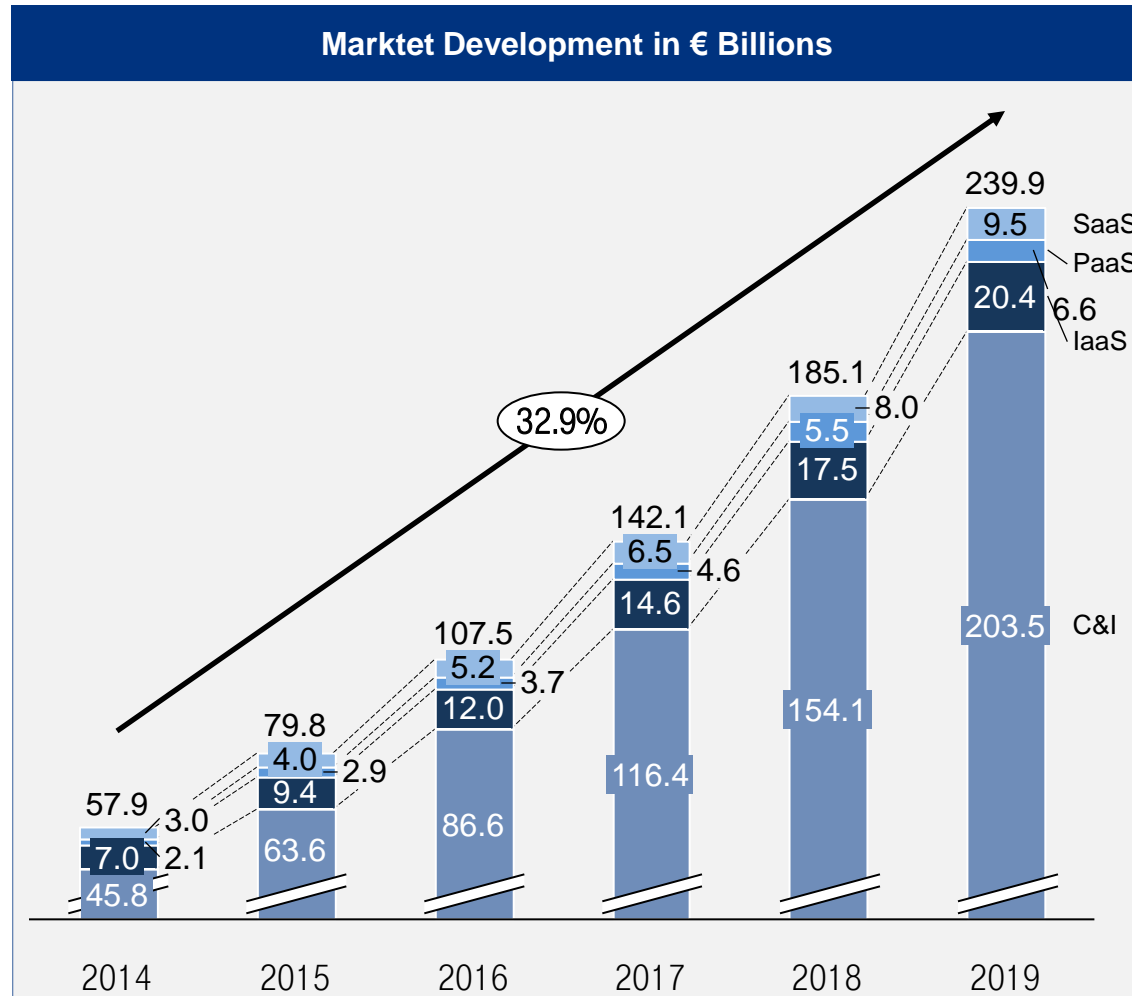
A map of Russia and Central Asia is shown with various logos of clients placed around it. In the center, the DETECON logo is displayed with the word 'Consulting' above it. Two dots on the map indicate office locations: 'Moscow' and 'Almaty'. The Moscow dot is accompanied by a circular inset image of a modern glass skyscraper. The logos include:

- ПОЧТА РОССИИ (Russian Post)
- Ростелеком (Rostelecom)
- ТТК (TTK)
- МЕГАФОН (Megafon) - Будущее зависит от тебя
- МТС (MTS)
- REHAU - Unlimited Polymer Solutions
- МГТС (MGTS)
- Volkswagen Finance - лизинг | кредит | страхование
- media (with image of media devices)
- ВимпелКом (VimpelCom)
- TELE2
- TRANSTELECOM
- ҚАЗАҚТЕЛЕКОМ (Kazakhtelecom)
- VisorCapital
- KEYCom
- icom

Cloud computing: sharing experience

1. Detecon profile
- ▶ 2. **Cloud computing intro**
3. Detecon experience

The global market for cloud computing services shows considerable potential and growth – in the overall market as well as in market segments.



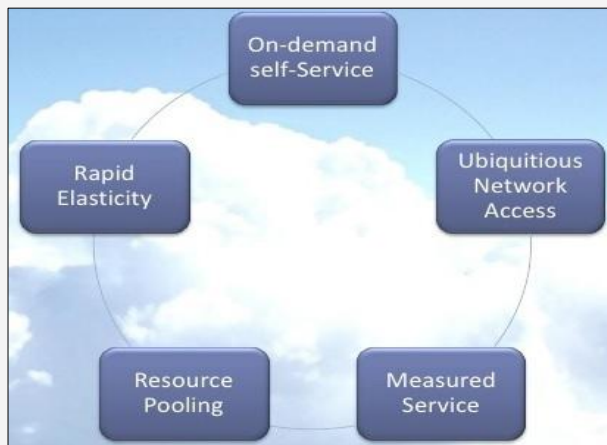
- Development**
- Double digit growth in all market segments.
 - The really good news: the demand for **cloud consulting and integration** is by far the biggest.
 - Infrastructure as a Service (IaaS) is the biggest of the three cloud categories.
 - Platform as a Service (PaaS) continues to increase, albeit somewhat more slowly than IaaS and SaaS.
 - Software as a Service (SaaS) has the biggest potential.

Quelle: PAC Research Market Monitor, Cloud Computing Overview, 2015; Cloud Computing Worldwide 2014, SITSI Horizontals Market Figures

So what exactly *is* Cloud Computing? And what kinds of challenges does it face?

Main Components and Definition*

Cloud computing services consist of 5 main components.*

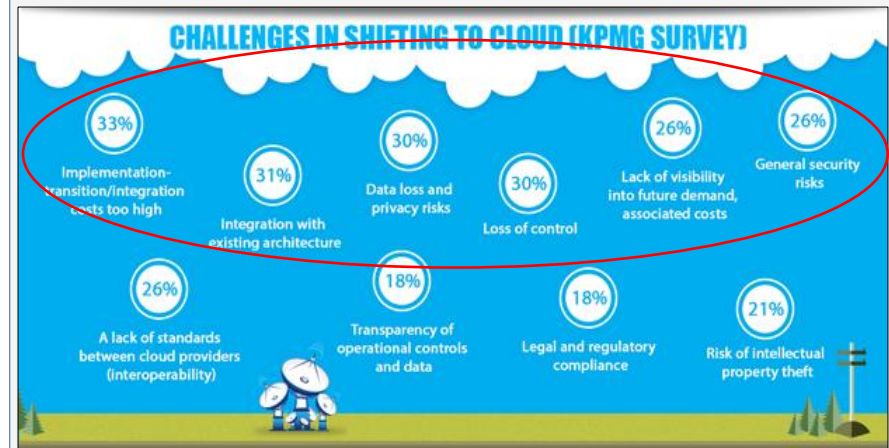


Cloud computing is defined as follows:

Cloud computing is a model for enabling ubiquitous, 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.

Challenges**

Cloud computing continues to face huge challenges.**



The above results are from one of many global CIO cloud surveys conducted during the past few years and tell a similar story about what CIOs find so challenging about cloud computing. The top 5 challenges usually include:

- High costs of implementation, of migration and of integration
- Complex integration with the existing IT-landscape
- Risks of data loss and data privacy
- Lost control of the own data
- Missing transparency within demand and respective costs

With cloud computing, there are significant advantages regarding costs, flexibility, service and innovation

The Differences between On-Premise Operations and Cloud Computing

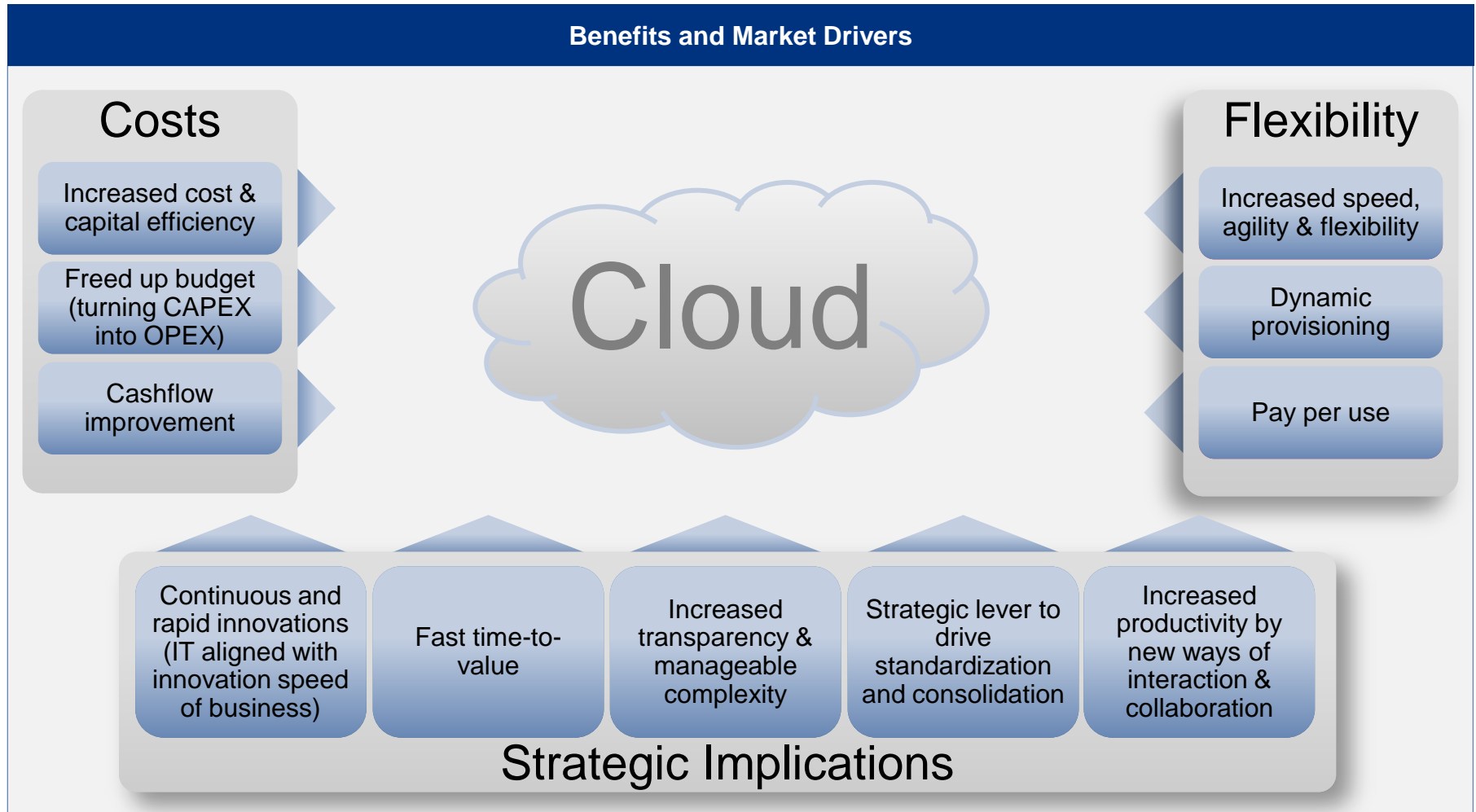
On Premise		Cloud Computing
Individual	← Service type →	Standardized
High	← Initial investments →	Rather Low
Total capacity needed	← Capacity Mgmtn. →	Demand oriented
CAPEX/OPEX Mix	← Costs →	Only OPEX
Rather Low	← Flexibility →	High
High	← Training efforts →	Limited
Rather Low	← IT Innovation speed →	High
Individually agreed, mostly limited	← Service operations & Support →	24x7 Support included

At first sight, outsourcing and cloud computing seem to be similar sourcing approaches. There are, however, fundamental differences.

The Difference between Outsourcing and Cloud Computing

Outsourcing		Cloud Computing
Specialised	← Service type →	Standardized
Potentially high	← Initial investments →	Rather low
Antecedent	← Order placement →	Demand oriented
According order	← Method of payment →	According usage
Mostly pre defined	← Costs →	Pay what you use
Pre defined	← Scalability →	High dynamic
According order	← Provisioning →	Fast
Rather long term	← Contract period →	Rather short term
Rather long	← Time to value →	Rather short

Cloud computing provides substantial benefits and – believe it or not – helps position the IT as a strategic enabler of the business.



In addition to its current rock solid positioning, the cloud computing market also provides future solutions for a wide range of challenges that IT organizations face today.

Benefit	IT's Challenges of Today and Tomorrow ... Conquered by the Cloud
<div data-bbox="79 482 150 611">Today</div> <p data-bbox="166 451 405 482">Cost Reduction</p> <p data-bbox="166 608 452 639">Rapid Deployment</p> <p data-bbox="166 748 382 813">Multi-Provider Sourcing</p> <div data-bbox="79 932 150 1061">Future</div> <p data-bbox="166 901 359 966">Integration Outsourcing</p> <p data-bbox="166 1058 374 1123">New Revenue Streams</p> <p data-bbox="166 1189 426 1255">Reduced Vertical Integration</p>	<p data-bbox="552 451 1199 482">Demand-oriented consumption of IT services.</p> <p data-bbox="552 608 1309 639">Reduced time for the deployment of IT environments.</p> <p data-bbox="552 762 1400 793">Optimized provider model due to higher level of abstraction.</p> <p data-bbox="552 919 1566 951">Removal of complexity by relocating to data and application integration.</p> <p data-bbox="552 1072 1462 1103">Extension of own value-creation through cloud service offerings.</p> <p data-bbox="552 1208 1186 1239">Reduction of individual shares in IT systems.</p>

Cloud computing encompasses several deployment and service models. The private cloud is usually characterized by a higher level of security and data protection.

Cloud Deployment and Service Models

Cloud Deployment Models

Public Cloud

The cloud infrastructure is provided for open use by the general public. It may be owned, managed and operated by a business, a public or government organization, or a combination of these. It is located on the premises of the cloud provider.

Private Cloud

The cloud infrastructure is provided solely for the exclusive use by a single organization. It may be owned, managed and operated by the organization or a third party and may exist on premise or off premise.

Community Cloud

Uses a shared IaaS and supports a specific community that has shared concerns (e.g., mission, security, policy, compliance & the transactions between the parties). It is managed by the organizations or a 3rd party and may exist on premise or off premise.

Hybrid Cloud

The cloud infrastructure is a composition of two or more clouds (private, community, or public) that remain unique entities but are bound together by standardized or proprietary technology that enables data and application portability.

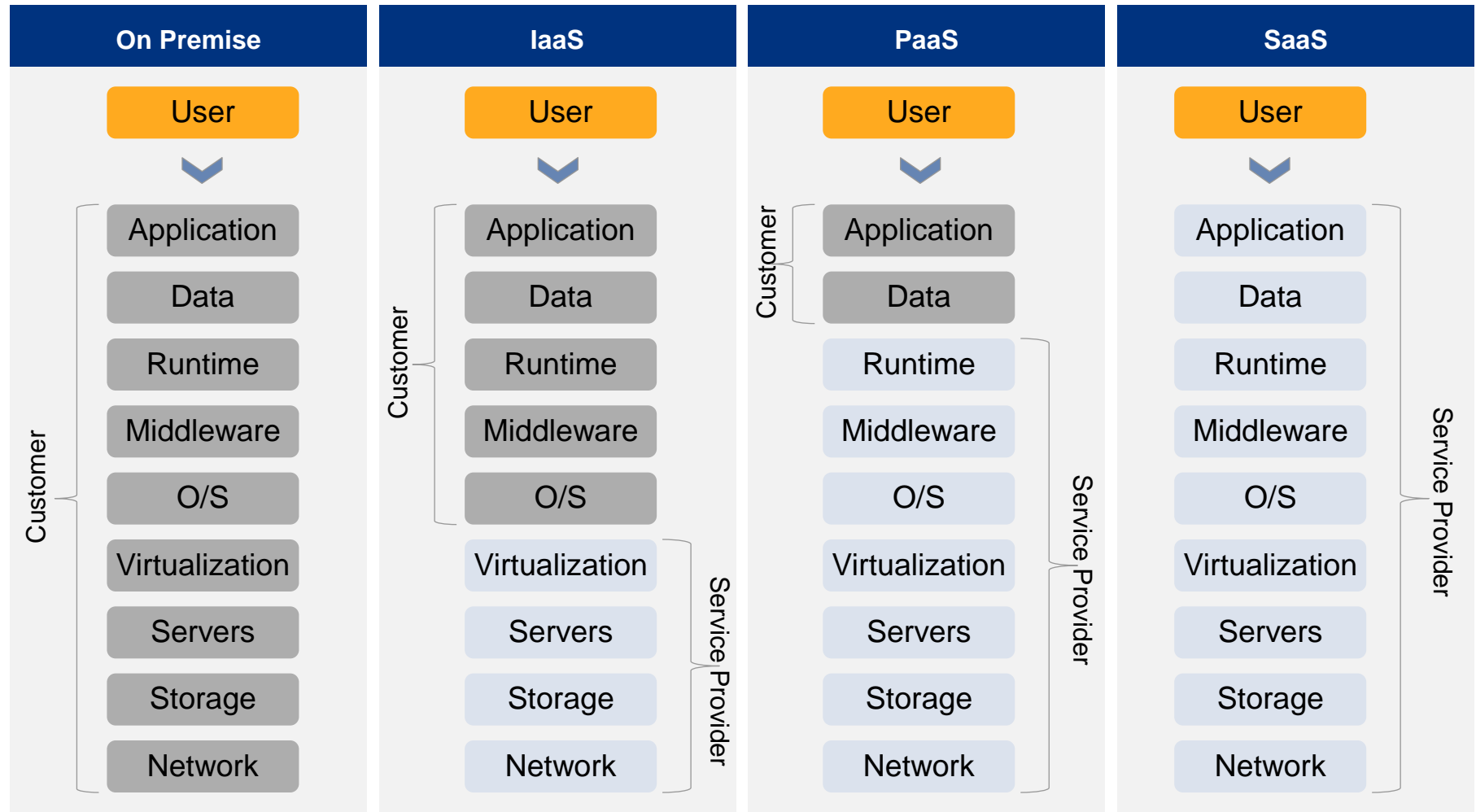
Cloud Service Models

Infrastructure as a Service
(IaaS)

Platform as a Service
(PaaS)

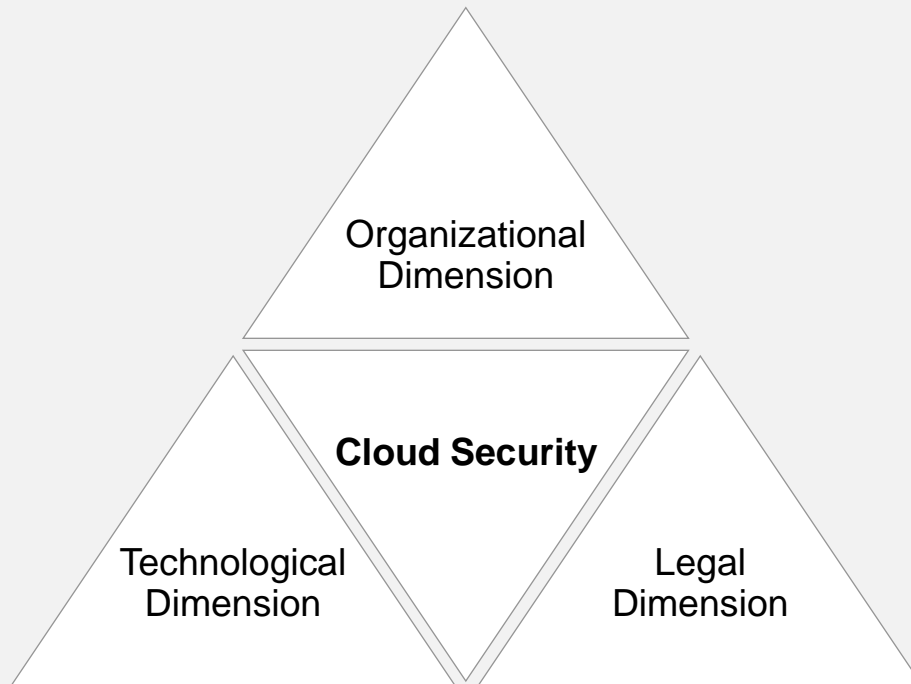
Software as a Service
(SaaS)

Below, the setup of the three cloud service models and related levels of responsibilities is depicted.



Cloud computing brings additional challenges with regard to security, which may be of technological, organizational and/or legal nature.

Cloud Security Dimensions



Some Points to be Considered

The consolidation and transition from IT services to a cloud computing environment generates all sorts of additional risks in organizations which need to be assessed and evaluated.

Several points have to be considered, including:

- Weaknesses and vulnerabilities of cloud technologies
- Organizational and operative complexity of a cloud computing environment
- Additional requirements within the areas of legal and compliance

The location of data is a decisive factor regarding data protection and compliance.

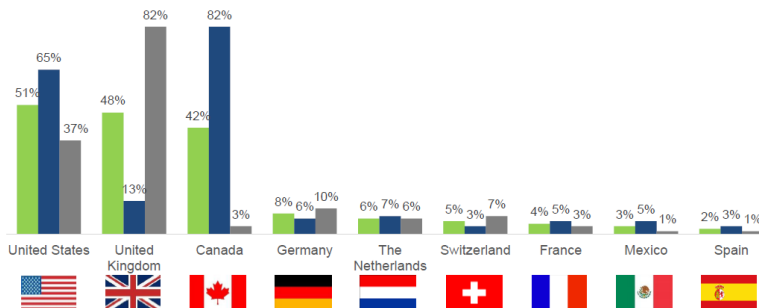
Location of Data



Question put to 150 English and 150 Canadian Companies*:
In which of the following countries are there servers on which your company's data is hosted?

Location of Current Data Servers

■ Total ■ Canada ■ UK



The location of data is what decides

- Information has to be stored physically somewhere, often in several places
- Data protection laws presume that the data resides in one place
- Different laws are applicable, independently of where the data resides

The relocation of data into the cloud can have a major impact on data protection rights and related responsibilities

- Existing laws may not be enforceable, such as with regard to health data
- Reduced protection of personal data

Legal uncertainties about data protection rights in the cloud

- Legislation lags behind the development of cloud technology
- Difficult to assess what happens when old laws are applied

*Peer 1 Hosting Survey of 300 UK and Canadian businesses, January 2014: *The Impact of the NSA on Hosting Decision Makers in the UK and Canada*

The completion of strict security criteria is one the most important USPs for providers of cloud infrastructure.

The Highest Data Security Standards: One of THE Critical Success Factor

- Infrastructure in secure, German datacenters
- Legal frameworks for data processing: based on German Data Protection Law
- Both network separation as well as security through dedicated, virtualized firewalls and secure WAN connections
- External and internal security and quality tests, attested by certifications
- Support of both security and compliance audits as well as logging and monitoring
- Encrypted and authenticated cloud management frontend and API
- Networking and security services for securing virtual networks



Cloud computing: sharing experience

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Detecon now offers comprehensive 360° consulting in the context of cloud computing.

Offer Cloud Services

Cloud Go-To-Market

- Initial Situation: The customer would like to improve his own service portfolio and begin offering innovative cloud services. The execution, however, poses a major challenge.
- Consulting Approach: Support the customer with the “cloudification” of his product portfolio, For example, with the development, specification and execution of innovative product ideas for market launch.

Cloud Implementation

- Initial Situation: The customer would like to improve his service portfolio and begin offering cloud services. The existing processes and governance structure, however, have not yet been adapted to dynamic cloud business.
- Consulting Approach: Support the customer with the establishment of automated, highly efficient governance and process structures so that cloud services can be successfully and profitably processed.

360°
Cloud
Computing

Use Cloud Services

Cloud Enablement & Cloud Brokerage

- Initial Situation: An IT service provider would like use cloud computing, for example, in order to optimize his service delivery. Yet either the required level of cloud maturity in the customer’s organization does not exist, or the scenarios and possibilities for employing cloud computing are still unclear, have not been sufficiently assessed, or the customer is uncertain about how to go about executing them.
- Consulting Approach: Support the customer with the relocation of services into the cloud, which may include conducting a maturity assessment, analyzing and raising awareness about cloud security and compliance, clarifying the architecture and operational model, as well as ensuring the actual relocation, stability and ongoing monitoring.

Detecon has extensive experience gained from numerous cloud strategy and cloud transformation projects both with providers as well as enterprises.

Selected Project References

- **Future Markets Strategy**

Analysis of the influence of cloud computing on the IT provider market. Definition of recommendations for innovation and portfolio management.

- **Cloud Computing Provider Portfolio Strategy**

Market analysis and roadmaooing of a cloud computing service portfolio for a global IT service provider.

- **Cloud Computing Innovation Study**

Analysis of the market player and evaluation of use cases for the deployment of cloud computing services in the IT organization of a global company.

- **Cloud Computing Roadmap and Strategy**

Definition of a transformation roadmap for the deployment of cloud computing services based on the usage, time to implement and level of maturity.

- **Cloud Computing Operating Model**

Definition of a target operating model for the deployment of IaaS services.

- **Migration of Applications into a Private Cloud Environment**

Management of the transition phase for migrating productive applications from a dedicated platform to a cloud-based platform.

- **Assessment of SaaS Solutions for an Office Environment**

Analysis of the technical and economical feasibility of the use of a cloud-based office software (Micrisift BPOS) in a large company.

- **Convergent Communications Services in the Cloud**

Innovation strategy for a communications product portfolio that is tightly linked with cloud-based application services.

Customers (Excerpt)

Deutsche Post DHL

DAIMLER

■ ■ T Deutsche Telekom


..T..Systems..

SIEMENS



ITENOS



Topic	Global Cloud Go-To-Market Strategy	
Segment	Telekommunikation, ICT	
Client / Focus of business	T-Systems is Deutsche Telekom's subsidiary for major corporations. With approximately 50,000 employees, the company generated revenues of €9.5 billion in 2013.	
Name of project	Global Cloud Go-To-Market Strategy	
Tasks	<ul style="list-style-type: none"> ■ Definition and implementation of a ISV cloud strategy ■ Sale of cloud infrastructure services and products, as well as sourcing of ISVs ■ Solution reselling of selected ISV IaaS and SaaS solutions ■ Management of contracts with ISVs and related frame agreements with procurement ■ Definition and coordination of sales enablement strategy, and enablement of T-Systems sales force regarding the cloud service portfolio ■ Development of indirect partner channel via Telekom Deutschland as well as external partners 	
Results / Solutions	<ul style="list-style-type: none"> ■ Successful implementation of the ISV cloud strategy, including development of knowhow ■ Acquisition of new clients for cloud services and strategic cooperation with cloud business partners ■ Establishment of additional sales channels for T-Systems cloud products ■ Generation of cloud revenues from ISV cloud solutions ■ Development of the internal processes, structures and platforms 	
Benefits	<ul style="list-style-type: none"> ■ Substantial increase in T-Systems' global revenues in cloud computing ■ Crucial support of T-Systems' strategic growth targets ■ Sustainable development of a new and strategically important business 	

Detecon Ref.: K-025732, K-026215, K-026327

Assessment of preferred location of data centre for European company

Criteria	Amsterdam	Frankfurt	London	Other EU	Non-EU/US
Connectivity	Major exchange point of internets (+)	Major exchange point of internets (++)	Major exchange point of internets (++)	Less bandwidth available (0)	US provides strong connectivity (++)
DC Providers	Strong presence of DC providers (++)	Strong presence of DC providers (++)	Strong presence of DC providers (++)	Medium (+)	Strong presence of DC providers (++)
Cost of living (based on NUMBEO*)	74% (+)	65% (+)	103% (-)	Local variations (0)	100% New York (0)
Regulation	Same legal framework as Company A headquarters (++)	EU legal framework; processing of confidential data possible (+)	EU legal framework; processing of confidential data possible (+)	EU legal framework; processing of confidential data possible (+)	Critical data subject to espionage; confidential data not allowed to export (--)
Connection to OTT service provider	Good (+), a.o. Amazon, Apple, Cisco, Deutsche Telekom, Twitter, Google, Microsoft, Netflix, Yahoo	Strong (++), a.o. Amazon, Apple, Cisco, Deutsche Telekom, Facebook, Google, Microsoft, Spotify, Twitter, Yahoo, Watchever, Zattoo	Good (+), a.o. Amazon, Apple, Cisco, Facebook, Google, Microsoft, Netflix, Sky, Spotify, Twitter, Yahoo	Low (-)	Strong (++)
Proximity to Company A	High (++), possibility to leverage existing business relationships e.g. with SET ICT.	Medium (+)	Medium (+)	Medium to low (0)	Low (-)
Summary Score	10	10	6	1	3

Preference

Assessment of preferred type of data centre for European company

Topic	Alternatives / Preference				
Centralization And Relocation	Splitted Service Delivery (between DCs City A & City B)			Centralized Service Delivery (in new data center)	
Primary Connection Type	VPN over Internet		IP-VPN Provider supplied	Leased Lines	
Business Unit Relation	Business Unit Dependence (Captive)			Business Unit Independence (Non-Captive)	
Data Center Location	Amsterdam	Frankfurt	London	Other EU	Non-EU/US
Vendor Strategy	Single Vendor			Multi Vendors	
Sourcing Scenario	On-Premise	Traditional Outsourcing	Private Cloud Sourcing (Builder)	Private Cloud Sourcing (Consumer)	Public Cloud Sourcing
Service Layer	Housing – existing HW Infrastructure Layer	Housing – new HW Infrastructure Layer		Hosting Infrastructure Layer	Hosting Platform Layer
Request for Information (RFI)	Company A shall start a tendering process (RFI) with the TOP5 providers (xxx, yyy, zzz, eee, ddd) due to the results of the vendor down-select.				
Final Negotiations	Company A shall start final negotiations with the TOP2 providers (a, b) according to the results of the tendering process (RFI).				

The background of the slide features a large, stylized graphic of a modern building facade with a repeating pattern of white, three-dimensional, V-shaped or chevron-like elements. The Detecon logo is positioned in the upper left corner of this graphic.

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