There is a growing belief that over the next five years, Cloud Computing will become a major stimulus for change in how corporations view and use Information Technology. Although the underlying technology of what is being presented, as “Cloud Technology” is actually nothing new, the consequences are estimated to be immense. Cost efficiency, scalability and availability are the main drivers in the discussion regarding Cloud Computing. Security and privacy are the main issues, which need to be dealt with when using services in the Cloud.
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Introduction

There is a growing belief that over the next five years, Cloud Computing will become a major stimulus for change in how corporations view and use Information Technology. Although the underlying technology of what is being presented, as “Cloud Technology” is actually nothing new, the consequences are estimated to be immense. Cost efficiency, scalability and availability are the main drivers in the discussion regarding Cloud Computing. Security and privacy are the main issues, which need to be dealt with when using services in the Cloud.

From an end user perspective, Cloud Services will offer small and midsize companies access to a level of technology that is currently not available to them. Large corporations will be able to make their IT environment more flexible and reduce their cost base. The speed of new product developments will increase significantly and will offer major advantages for the end customer.

Statistics from BITKOM (2009) show that the volume of Cloud Services being offered and used is growing rapidly. As an example, the investments in Cloud Services in Germany has grown from a volume of about 222Mio € in 2008 to 285Mio € in 2009 and 388Mio € in 2010. In 2011 the aggregated amount spent on Cloud is predicted to be 564Mio €.

The main question is: how to take maximum advantage of the services offered in the Cloud?

In this whitepaper, we will look at the opportunities and risks related to the use of services in the Cloud and provide recommendations about how to navigate your organization through the Cloud.
Cloud Computing Defined

The expression Cloud Computing is widely used in IT and business circles. Many users, however, are confused as to what the underlying service actually is and how it can be integrated into their IT and business process landscape.

The German Vendor organization BITKOM defines Cloud Computing as “flexible and on a need-based IT service”.

The organization Cloud Manifesto sees Cloud Computing as a model that enables access to a configurable computing resource, which is easily accessible with no or only minimal Service Provider input.

Another definition that indirectly highlights one of the inherent risks of Cloud Computing states that “if the user does not know the physical location and configuration of the system that delivers the services of computation, software, data access, and storage services” (Wikipedia) it can be defined as Cloud Computing.

In order to gain a common understanding, we have analyzed the definitions that are commonly used and have summarized them to include the various aspects of the Cloud as experienced through our client engagements:

“The flexible usage of IT services which are available in real-time/on-line via the Internet/Intranet, enabling users global access to standardized services. Cloud Services require no (or minimal) initial fixed cost investment and are charged on a usage basis.”

The IT services offered consist of application services, software platform services (covering development and production), as well as the required infrastructure services i.e. CPU and storage capacity. One of the many advantages for the user is the fact that instead of high upfront fixed cost investments, most if not all, costs are variable and can be spread over the duration of the usage.

Cloud Computing can be seen as the next level of sourcing. Over the last decade, sourcing has become one of the most commonly used methods for a business to acquire services. Cloud Computing, as a logical progression of sourcing, brings with it a number of specific advantages as described above and a number of concerns, which need to be addressed before it will be seen as a Business Innovation Model.

Data Security and Data Protection are essential components to review when using stand-alone Cloud Computing services as well as integrated Cloud Computing services within existing IT environments. Moreover the availability of services offered within the Cloud, the level of performance of these services and the support of existing business processes are topics that need to be clarified before making the move into the Cloud.

A clear understanding of the different types of Cloud Services and their advantages, disadvantages and related risks need to be evaluated prior to making a decision on how to use the Cloud. In the following section, we summarize the different types of Cloud Computing options depending on services delivered.
Cloud Computing Layers

Cloud computing itself can be separated into three service models, also defined as service layers.

**Layer 1:** Infrastructure as a Service (IaaS), offering virtual IT infrastructure (i.e., hardware, storage)

**Layer 2:** Platform as a Service (PaaS): offering virtual application infrastructure services (i.e., database and middleware)

**Layer 3:** Software as a Service (SaaS): offering virtual application services (i.e., applications and processes)

As in other service offerings, Cloud Services cover those specifics supplied by the service provider for a user or a specific set of users. The diagram below shows how users access the Cloud.

*Diagram 2: Cloud Services and Participants*

Users can obtain SaaS, PaaS or IaaS offerings individually, or can combine the various services.

Depending on the user community and the vendors involved in the delivery of the Cloud Service, Cloud is differentiated with the following categories:
Public Clouds – offered by a supplier whereby any user can access the services supplied in the Cloud irrespective of the user location. Legal restrictions apply based on local laws of the country where the user is located.

Private Clouds (also called Enterprise Clouds) – normally owned by large institutions and only accessible by its users, irrespective to the geographic location.

Hybrid Clouds – a mix of services offered by Private Clouds and Public Clouds.

Within Cloud Computing, a variety of technically innovative solutions are combined and can deliver the potential for an innovative business approach leading to cost reduction, cost structure improvement, variability of cost, flexibility of services and ultimately entire new business models. Furthermore, time to market for new products is significantly reduced.

The question that organizations must face is: Is the Business ready to use Cloud and if yes, which services offered within the Cloud are the most suitable to support the Business Model?

Based upon the experience gained during reviews at customer locations, Trestle Group recommends the following points to be considered when evaluating Cloud as an IT- and/or Business-driven solution:

Before engaging in Cloud Computing, initiate a project that reviews existing processes and products. The review process should go through the following steps in order to optimize use of Cloud Services:

Step 1: Standardization: Evaluate the actual level of process automation within the business being serviced.

Step 2: Virtualization: Identify the opportunities (from an IT and process perspective) within the existing operating model to virtualize services.

Step 3: Automation: Analyze level of automation of processes and identification of potential by using the Cloud for virtualized processes.

Step 4: Cloud Computing: Introduce those selected services into the Cloud and define how to integrate the Cloud services into the existing IT/Process Environment.

The concept of the Cloud is to offer standardized services. Offering customized proprietary services reduces the standardization and scalability, which has an impact on the overall cost and usability by a diverse user base. The evaluation process on how to use Cloud should deal with this question: Can my business conform to the Cloud standard or is my business so unique that we must retain our non-standard IT/processes?

The Impact of Cloud Computing

Cloud Computing forces a paradigm change for both suppliers and users. All sectors of the IT industry are affected. The role of independent software suppliers, software integrators, value added partners, value added resellers and IT service providers are evolving because of the Cloud.
Due to the interaction between the various suppliers within the Cloud, their role is changing significantly. All major suppliers currently offer a Cloud Service whereby the biggest challenge rests with the independent software supplier community as they have to change their offering from the traditional software product delivery to a SaaS model offering.

As IT Departments introduce Cloud solutions in the context of their traditional environment, new challenges arise. Existing processes and governance structures dealing with change management; release management, licensing and integration of services need to be amended in order to deal with the Cloud Service being used.

Moreover, as Cloud is an extension of sourcing, the procurement of Cloud Services is becoming extremely important. IT staff, previously in charge of design and development of new services, are now focused on acquiring the best service and integrating the Cloud components within the existing IT environment. This automatically leads to the procurement function playing a more eminent role as services are being sourced. Cloud is the next level of sourcing and can only be successful if the procurement organization is structured properly to ensure Cloud Services are acquired in the most optimal way.

Looking at the IT Industry, it is clear that those suppliers already offering mobile services, SaaS solutions and managed services (outsourcing) have a major advantage. For these players, Cloud Services are the next logical step in the delivery of an enhanced sourcing model in order to achieve further savings.

The use of Cloud Services requires a detailed analysis of the existing processes, IT infrastructure, and the services offered within the market to identify those services that deliver benefits to the business. The implementation model should cover items such as security and data protection and integration of Cloud Services, availability and performance.

Once the decision on the service is made, the service provider, the processes and products need to be reviewed as part of a project to implement standardized Cloud Services.

**Security, Legal and Regulatory Aspects of Cloud Computing**

Within the Cloud, users expect to find an identical security framework as generally available in traditional IT environments. Items such as controlled access, data security and data protection need to be ensured and not assumed. Between the supplier and the user, SLAs need to be defined to ensure transparency of services supplied, especially in the case of outages.

In principle, Cloud Computing, as a new form of sourcing, does not lead to new challenges on a legal and regulatory basis, however, the more extensive use of infrastructure, application and process services in the Cloud means that adherence to existing data protection rules and regulations becomes more challenging.

In traditional IT environments, the CIO is confronted with a framework of local laws related to data protection and rules and regulations covering the adherence to applicable accounting standards. These rules and regulations need to be adhered to and implemented for all services obtained in the Cloud and imply a high level of trust on the vendor supplying the services.
The importance of reviewing the security and the legal & regulatory aspects increases significantly when Public Clouds are being used. It is up to the providers to set-up the necessary frameworks that guarantee the user a secure processing environment adhering to the legal standards, rules and regulations within the country the user is registered in.

Prior to using Cloud Services, organizations should obtain a clear and transparent overview from the supplier which services are performed under which conditions. The definition of clear, agreed upon SLAs and KPIs covering availability, quality of service and adherence to data security and legal/regulatory requirements is essential.

Once the overall structure of the services is defined, details should be documented in a contract defining duration of the services, payment cycles and clauses for termination and liability in case of non-delivery. Additionally, organizations should include what needs to be done when services are taken out of the Cloud or obtained from a different supplier.

**Summary**

All major providers offer services in the Cloud, which can bring enormous advantages to large, small and midsized companies when properly implemented and used.

There are challenges in implementing Cloud services, which are similar to those inherent in IT sourcing engagements and can be successfully dealt with when addressed in a structured way. The recommendations outlined in this white paper should serve as a starting point to effectively address a number of these challenges.

The key to success is to be prepared for the Cloud. Based upon years of experience as a sourcing advisory organization, Trestle Group has developed a comprehensive framework to support and optimize our customers’ Cloud Services, whether currently in use or under consideration. This framework covers all aspects of how to be prepared for the implementation of Cloud Services and how to leverage the benefits. Moreover, the framework enables the customer to evaluate to which extent available Cloud Services can be used in an optimal and secure manner.

Contact a Trestle Group advisor today to navigate your organization through the Cloud.
About the Researcher

Reid Anderson, Senior Manager - With over 10 years of combined industry and consulting experience in the financial services sector and 5 years spent managing personnel and logistics operations during federal natural disasters for the US Government, Mr. Anderson brings a wide bandwidth of tools and a unique set of skills to Trestle Group and its clients. Mr. Anderson's financial services industry experience in the U.S. ranges from outbound and inbound call-center operations for FIA Card Services, N.A. (formerly MBNA America) to analyzing commercial credit risk for small to medium sized companies in the greater Baltimore area for Provident Bank of Maryland. Complimenting these activities, Mr. Anderson was later hired into Deutsche Bank's captive securities processing center, Xchanging Transaction Bank (formerly European Transaction Bank GmbH) in Frankfurt, Germany. In this setting, he gained valuable skills in project management, process analysis & design, contract management, negotiations, securities processing and financial markets. Joining Trestle Group in 2003, Mr. Anderson has been engaged in supporting IT & BPO in/outsourcing client initiatives across industries in Kuwait, Italy, Switzerland, Germany, Luxemburg, England, India, Singapore and the U.S. He has led teams in the areas of business case definition, vendor selection, contract definition and negotiation, process design (including KPI definition), IT implementation and change management.
Organizations are under constant pressure to increase revenues and optimize costs while responding to a rapidly changing world. Through a combination of shared services, vendors and a global workforce, significant opportunities exist to manage these challenges.

Trestle Group is an international advisory firm focused on helping companies design and implement strategies that maximize their potential. Our areas of support include:

- Opportunity Assessments
- Organizational Design
- Governance
- Process Design
- Process Optimization
- Vendor Selection
- Vendor Management
- Service Level Agreements
- Consolidation / Centralization
- Project Implementation
- Change Management
- Procurement Support
- Risk Assessments
- Performance Audits
- Compliance Reviews
- Benchmarking

Framework

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<th>Activities</th>
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<td>Identifying potential</td>
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<td>▪ Confirmation of objectives, benefits and risks.</td>
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<td>▪ Assessment of options using proven methodologies.</td>
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<td>2</td>
<td>Analyzing status quo</td>
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<td>▪ Current state analysis and benchmark of existing sourcing landscape.</td>
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<td>▪ Business case/ risk evaluation of potential versus current state.</td>
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<td>3</td>
<td>Planning target state</td>
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<td></td>
<td>▪ Establishment of requirements for selecting vendor/ model.</td>
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<td>▪ Vendor and location selection process.</td>
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<td>4</td>
<td>Transformation to target state</td>
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<td>▪ Planning and implementing transformation phase.</td>
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<td>▪ Support in business continuity management and go-live.</td>
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<td>5</td>
<td>Continuous optimization</td>
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<td>▪ Ongoing optimization of business model.</td>
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<td>▪ Vendor sustainability and risk / compliance audits.</td>
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Contact Trestle Group

For more information about the services Trestle Group provides, please contact one of our offices or visit our website.

www.trestlegroup.com