10. Cloud Disruption

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Abstract:

Cloud computing (Cloud) introduces new information technology (IT) optimization challenges for business management. The traditional supply of IT services is disrupted by more diverse and cost-efficient options where all IT services can be rented or leased on-demand to suit a business requirement. The implication is for a forecasted discontinuation of many IT workplace roles and the formulation of others to fit the new requirements. This exploratory research shows that the IT service supply chain has been disrupted and that Cloud is a driver for business structural change. We asked: What are the impacts of cloud computing on business information system (BIS) IT services roles? A targeted sample of industry Cloud professionals were consulted, and the data thematically analyzed. The data analysis showed seven general business impact categories and six classes for BIS IT role impacts. These findings contribute to understanding of uncertainty around the new business IT role requirements.

Cloud Computing has brought a new wave of innovation in Industry. In 2017 Cloud Computing was at the Slope of Enlightenment according to Gartner's Study report from the Trough of Disillusionment. Many IT Companies are adopting Cloud Computing and there is a change in the skill set requirement and practices followed because of Lots of Benefits and scaling the business needs cloud Bring in. So, this research concentrates on finding out whether Cloud Computing has brought Disruption in the Market. Cloud Computing has revolutionized how businesses operate, offering unparalleled flexibility, scalability and cost-efficiency. However, even the most robust cloud platforms are not immune to outages. Cloud outages can disrupt services, impact business continuity and lead to significant financial losses.

Keywords:

Disruption, Cloud Computing, Cloud disruption, Trends, Cloud outages, Consequences of cloud outages.

10.1 Cloud Computing:

"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."

10.2 Cloud Disruption:

Cloud disruption, or a cloud outage, occurs when cloud computing services and applications are unavailable or experience issues. Cloud outages can have serious consequences for businesses, including: financial losses, operational inefficiencies, reputational damage, and legal consequences.

With video primed to account for more than 80% of future traffic on the internet, it's hard to imagine how today's devices and networks will handle that change. As the cloud begins to expand to new ways of serving data and performing basic user functions, we'll see the internet open in vastly new ways. Cloud trends will show us an end to data lags, dropped videos, and buffers as we know it.

Here are seven cloud trends affecting us now and in the coming years.

1. Wild Growth of Services:

With the ability to take advantage of SaaS, PaaS, and IaaS developments, cloud computing continues to be wildly successful. New services keep evolving as "Function as a Service" and "Backend as a Service" has been added to the mix.

The number of ways you can access and utilize cloud services has never been more varied. Markets keep breaking financial records as industries all over the globe keep adopting and adapting their business models to utilize the cloud.

While several industries and trends are showing some slowdown as adoption rates peak, cloud computing continues to grow, and businesses accrue more data.

2. Massive Storage Capacity:

One of the reasons that cloud computing was adopted in the first place was the ability for businesses to store data on-premises was topping off or becoming too expensive. With the amount of software and data that the average business is now required to store for clients, users, employees, and companies are reaching peak storage.

3. Storage is Cheaper Than Ever;

The cloud storage industry has been moving so fast it's hard to follow the massive growth. With its expansion, storage has never been cheaper. One of the most important cloud computing trends has been a serious drop in the price of storage.

4. Clouds Without Servers:

While the first instantiations of cloud computing had required servers as the storage device for data, the systems have changed drastically. Now companies can store their data online, making server storage integration obsolete.

5. Cloud-Based Containers:

Most cloud computing trends take existing hardware systems and then replace them with something leaner and internet-based. However, with the rise of container systems, software-based systems are taking a tumble as well. In many cases, virtual machines are being replaced with cloud-based containers.

6. IoT:

The Internet of Things has been everywhere for the last few years. From smart microwaves to smart printers, to home heating systems, devices reliant on the cloud can easily connect to systems and share data. Using the data collected, they can learn habits and suggest ways for users to live and work more efficiently and cost-effectively.

7. 5G Networks:

As more data is created by the new trends in cloud computing and IT services, that data will need to move faster and more efficiently. Handling huge amounts of data is no easy task and without a reliable connection and the ability to be super-fast, cloud storage could be pointless. LTE has hit a peak and so now the world is looking at 5G as the answer.

Across the planet, 5G networks are being deployed. With increased adoption, cloud-based services are expanding. In places like India, where most internet usage is mobile, this will become a must for a globalized world.

10.3 Causes of Cloud Outages:

Cloud outages can occur for a variety of reasons, ranging from technical failures to human errors. Here are some of the most common causes:

- **Hardware Failures:**

Cloud data centers rely on a vast array of servers, storage devices and networking equipment. Hardware components can fail due to wear and tear, manufacturing defects or operational stress. Disk failures, server overheating and network switch malfunctions are typical hardware-related issues.

- **Software Bugs and Glitches:**

Software bugs or glitches in cloud management systems, operating systems or applications can cause outages. New updates or patches might introduce unexpected issues despite testing. For instance, a minor bug in orchestration software could prevent virtual machines from starting, leading to downtime.

- **Network Failures:**

Cloud services depend on robust network infrastructure. Any disruption in network connectivity can cause an outage. Network-related issues could stem from problems with internal data center networks or the wide-area networks that connect different data centers.

- **Power Outages:**

Data centers require a continuous power supply. Power outages can occur due to grid failures, natural disasters or internal electrical issues. While most data centers are equipped with backup power systems like generators, these systems can also fail or run out of fuel.

- **Human Errors:**

Personnel mistakes during maintenance, configuration or operation can impact cloud services. Despite increasing automation, human errors remain a frequent cause of outages. Incorrectly applying a configuration setting that disrupts the virtual machines.

- **Security Breaches:**

Cyberattacks, including ransomware, phishing and unauthorized access, can compromise cloud services. Attackers might exploit vulnerabilities in cloud infrastructure to cause downtime or harvest data.

10.4 Consequences of Cloud Outages:

Cloud outages can have far-reaching consequences for businesses and end-users. Here are some of the key impacts:

- **Business Interruptions:** Downtime can halt business operations, leading to reduced productivity and missed opportunities. This is especially critical for businesses that depend heavily on real-time data processing and online transactions. For instance, an online retailer experiencing an outage during Black Friday can lose significant revenue and customer trust.

- **Financial Losses:** Downtime can result in direct revenue loss, compensatory payments and increased operational costs. The longer the outage, the larger the potential financial impact. For example, if a cloud service provider fails to meet SLA guarantees, they may have to compensate their customers, leading to financial losses.

- **Reputational Damage:** Frequent or prolonged outages can erode customer trust and tarnish a company's reputation. This can have long-term impacts on customer retention and brand value. For example, if a banking service faces repeated outages, clients may switch to more reliable competitors. Downtime and service degradation have significant consequences, costing Global 2000 companies $400 billion annually.

- **Data Loss:** Severe outages can result in data corruption or loss, particularly if proper backups are missing. Recovery can be costly and time-consuming. For example, a storage system malfunction could cause irretrievable damage to customer records.

- **Regulatory Implications:** Depending on the industry, outages can result in non-compliance with regulatory requirements, attracting fines and legal issues. Regulatory bodies require certain standards for data availability and integrity. For instance, healthcare providers can face HIPAA non-compliance due to data

unavailability. Failure to comply with regulations on patient data availability can lead to hefty fines and legal consequences.

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