

2022 Key Topics Update
Financial Executives
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Today's speakers



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Agenda

1 Supply Chain Disruption

2 IT - Cloud Services

3 Q&A

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Supply Chain Disruption

Is the supply chain still actually a “chain”?
And what is Disrupted?



The better the question. The better the answer.
The better the world works.

This is a “traditional supply chain” structure

Lean & cost optimized

Focused on Tier 1 suppliers

Talent challenges with tenure & skills

Slow response to changing trade and tax environment

Vendor concentration

Immature risk mitigation process

Limited visibility

Suppliers

Manufacturers

Logistics

Warehousing

Distribution

Customers

Limited investment in technology

Intercompany pricing not keeping pace with trade and tax environments

Poor data integrity, quality and security

Mis-aligned and Mis-placed inventory levels

Geographic concentration

Agility, resilience & sustainability are not inherent in today's supply chain structures.

The “chain” is not equipped to cope with disruption.

An increasing number of **unexpected disruptions** continue to hit supply chains and impact overall business performance

DISRUPTORS

Trade Wars

Cyber Attacks

natural disasters

Pandemic Economy

Technology

Regulation

Tax policy changes

Distressed suppliers

Climate
Change

costs

BREXIT

Geo politics

INFLATION

Great Resignation

**Changing Consumer
Behavior**

Supply chains have begun to shift from **rigid and linear** to **agile, networked ecosystems** on the path to an autonomous future

Before

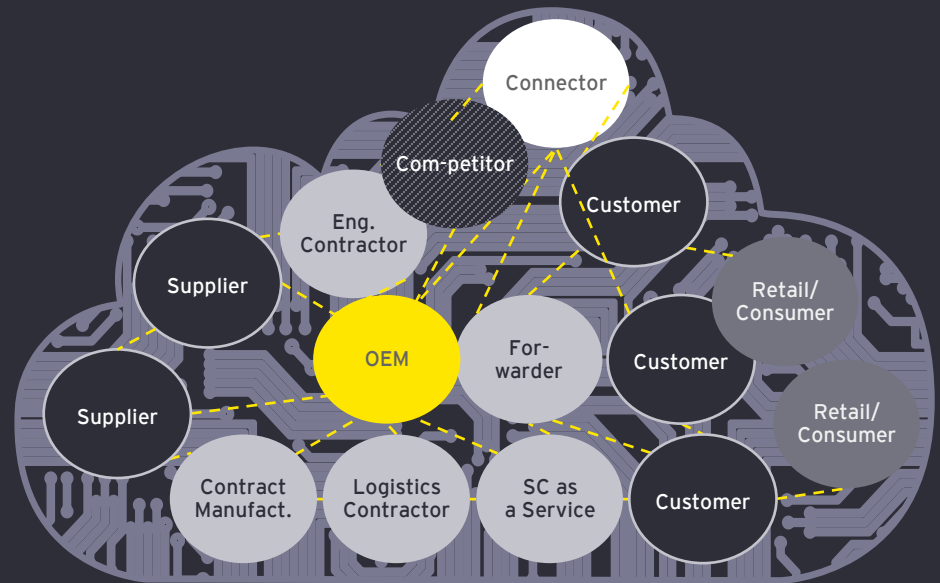
Cost optimized, manual, rigid and linear



Value-creation within entities,
on premise IT, slow to respond

Current

Networked Ecosystems

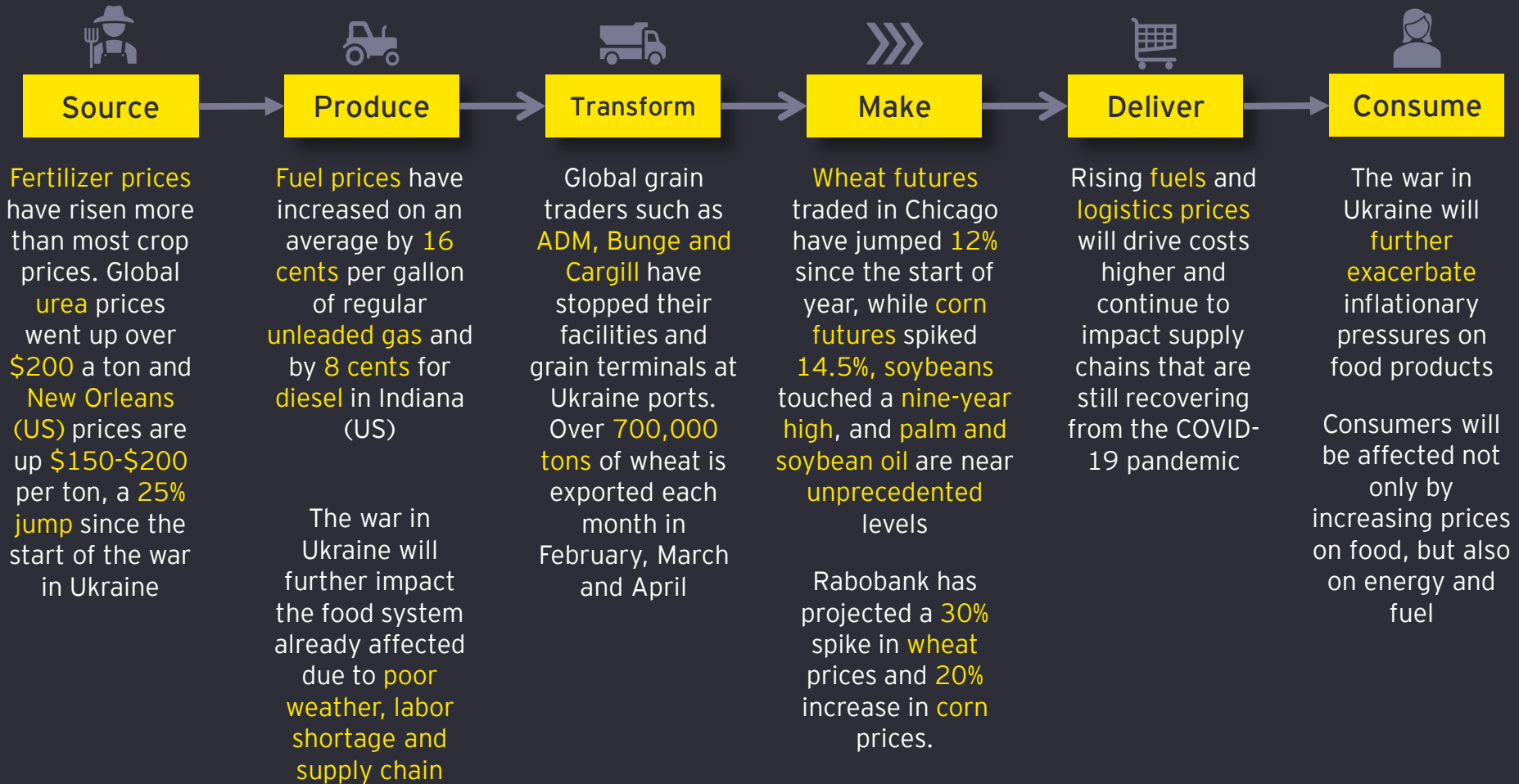


The new world: Industry 4.0 with ecosystems on cloud
enabled platforms

Current Disruption



The war in Ukraine and resulting sanctions will have direct and indirect implications across the value chain



How Global is the Global Supply Chain Ecosystem?

Corn production and supply

- ▶ **Ukraine** contributes to **16%** of global corn exports. It met **35%** of China's **corn imports** in 2021 (compared to **86%** in 2019)
- ▶ **Brazil and Argentina** are expected to have **13mt** of corn **production losses** due to poor weather
- ▶ **US corn exports** are likely to grow as a result of the situation



Wheat production and trade

- ▶ Russia and Ukraine account for **28%** of the global wheat trade. Without their supply, the global **stock-to-use ratio** could reduce down to **30%** from present **35%**
- ▶ **Egypt and Indonesia** each account for more than **15%** of Ukraine's wheat imports. Egypt has **cancelled** its wheat orders from Ukraine and aims to procure from **14 other countries**, some of which are **outside the EU**



Alternative sourcing of meat products

- ▶ Russia and Ukraine contributes to **6%** of the global poultry exports
- ▶ Ukraine's accounts for **~10%** of Saudi's poultry imports
- ▶ Supply shock from Ukraine may generate tailwinds for **Brazilian companies** to become a source for new geographies



Identification of substitute products

- ▶ The Black Sea region accounts for more than **70%** of the sunflower oil trade with key importers like China, India and the EU
- ▶ India imports **93%** of sunflower seed oil combined from both the nations
- ▶ India will likely increase **soybean oil** and **palm oil** purchases to offset the sunflower seed oil shortfall



Supply Chain Effects - Semiconductors

- US tariffs/threats imposed to damage certain Russian industries such as quantum computing, civilian aerospace, and artificial intelligence. Sanctions could widen and lead to the foreign direct product rule which would ban trade for products using semiconductors
- For example: certain **tablets, smartphones, and video game consoles**
- In an email from the director of the Semiconductor Industry Association (SIA) to Reuters, the measures could include financial and export restrictions such as those in place in Iran, North Korea, and China
- The last time the US imposed this rule against Chinese company Huawei, the company faced a first ever **annual revenue drop of 30%**
- **iPhone as an example:** 70% of raw materials from Asia, 45% in China, and the cost of building a new fabrication facility being \$15B+ aggravated by changing consumer preferences (the I want it now culture)

Raw Materials - Titanium & Rare Earth Minerals

- Ukraine: In 2020, Ukraine was a top global exporter for titanium - exporting 8.98% of the globe's titanium for a total of \$140M.
- Russia is one of the world's largest titanium producers. The country produces, on average, 40,000 metric tons of titanium sponge in a year.
 - ▶ VSMPO-Avisma is the largest titanium producer in Russia
 - ▶ It is also Boeing's main supplier for titanium, ventured with VSMPO-Avisma's parent company Rostec Corporation, to create finished aircraft parts in the west region of Russia
- Russia imports more than 60% of rare earth minerals and more than a third of strategic metals.
 - According to the Russian Accounts Chamber, foreign supplies represent 100% of the economies needs in titanium and other materials. This dependence on foreign supplies of rare minerals can carry risk for security. These materials are scarce, strategic, and important for the country's economy

Cloud Services



The better the question. The better the answer.
The better the world works.



Today's

speakers



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Agenda

1 Cloud Services Overview

2 Cloud Service Types


3 Cloud Service Benefits

4 Cloud Service Risks

5 SOC Reporting

1 Cloud Services Overview





Cloud computing is the on-demand delivery of compute power, database, storage, applications and other IT resources.

Cloud Examples



Dropbox



The Five Characteristics of Cloud Computing

- ▶ Multi-tenancy and resource pooling
 - ▶ Multiple customers can share the same infrastructure and applications with security and privacy
 - ▶ Multiple customers are serviced from the same physical resources
- ▶ Broad network access
 - ▶ Resources available over the network, and can be accessed by diverse client platforms
- ▶ On-demand self service
 - ▶ User can provision resources and use them without human interaction from the service provider
- ▶ Rapid elasticity and scalability
 - ▶ Automatically and quickly acquire and dispose resources when needed
 - ▶ Quickly and easily scale based on demand
- ▶ Measured service
 - ▶ Usage is measured, users pay correctly for what they have used

A person in a server room looking at a tablet, with server racks and blue lighting in the background.

Cloud Services Types

Cloud service types

- ▶ On Premise
 - ▶ This not a type of cloud computing
 - ▶ 100% of responsibility is on your team
- ▶ Infrastructure as a Service (IaaS)
 - ▶ Provides basis of cloud computing
 - ▶ Easy parallel with traditional On-Premise IT
- ▶ Platform as a Service (PaaS)
 - ▶ Focus on the deployment and management of your applications
- ▶ Software as a Service (SaaS)
 - ▶ Completed product that is run and managed by the service provider

On Premise Management

Data

Applications

Operating System

Virtualization

Network

Facility

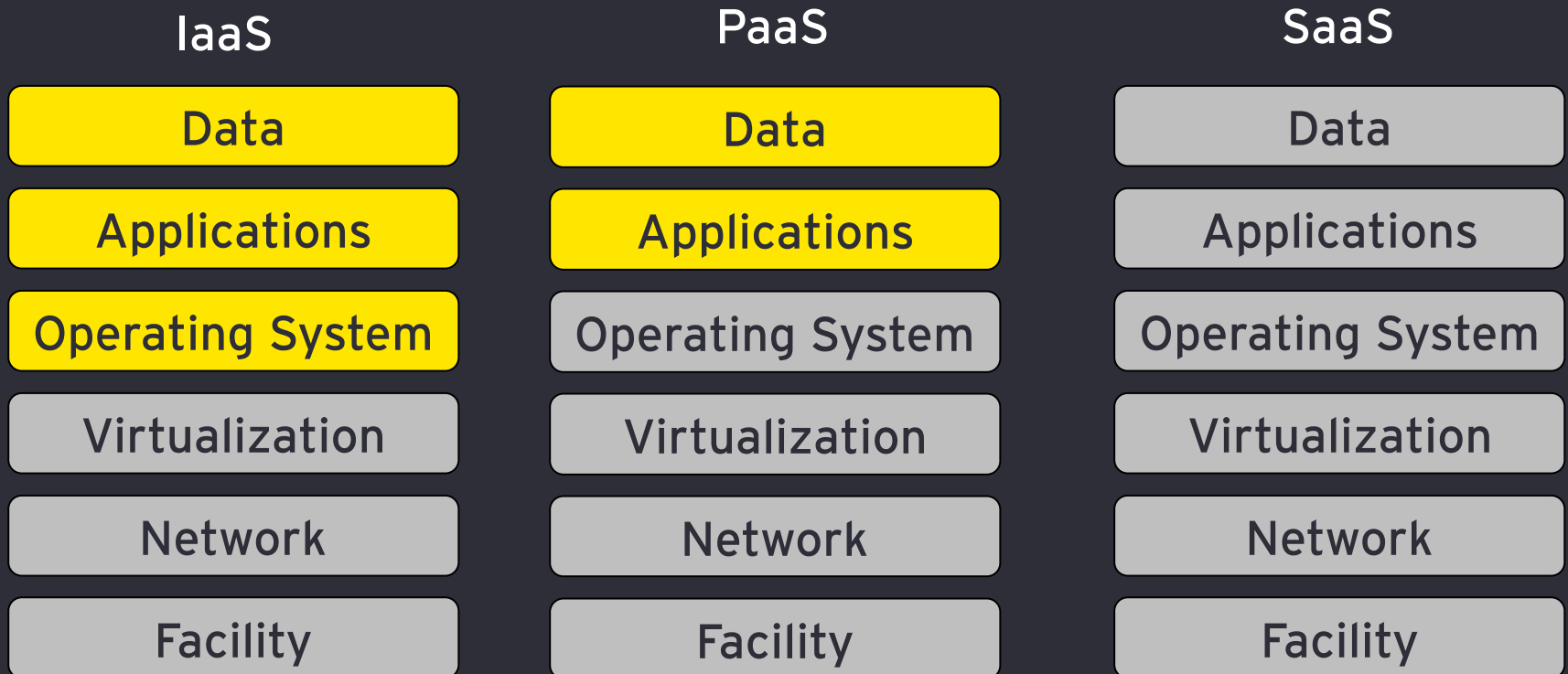



Customer Manages



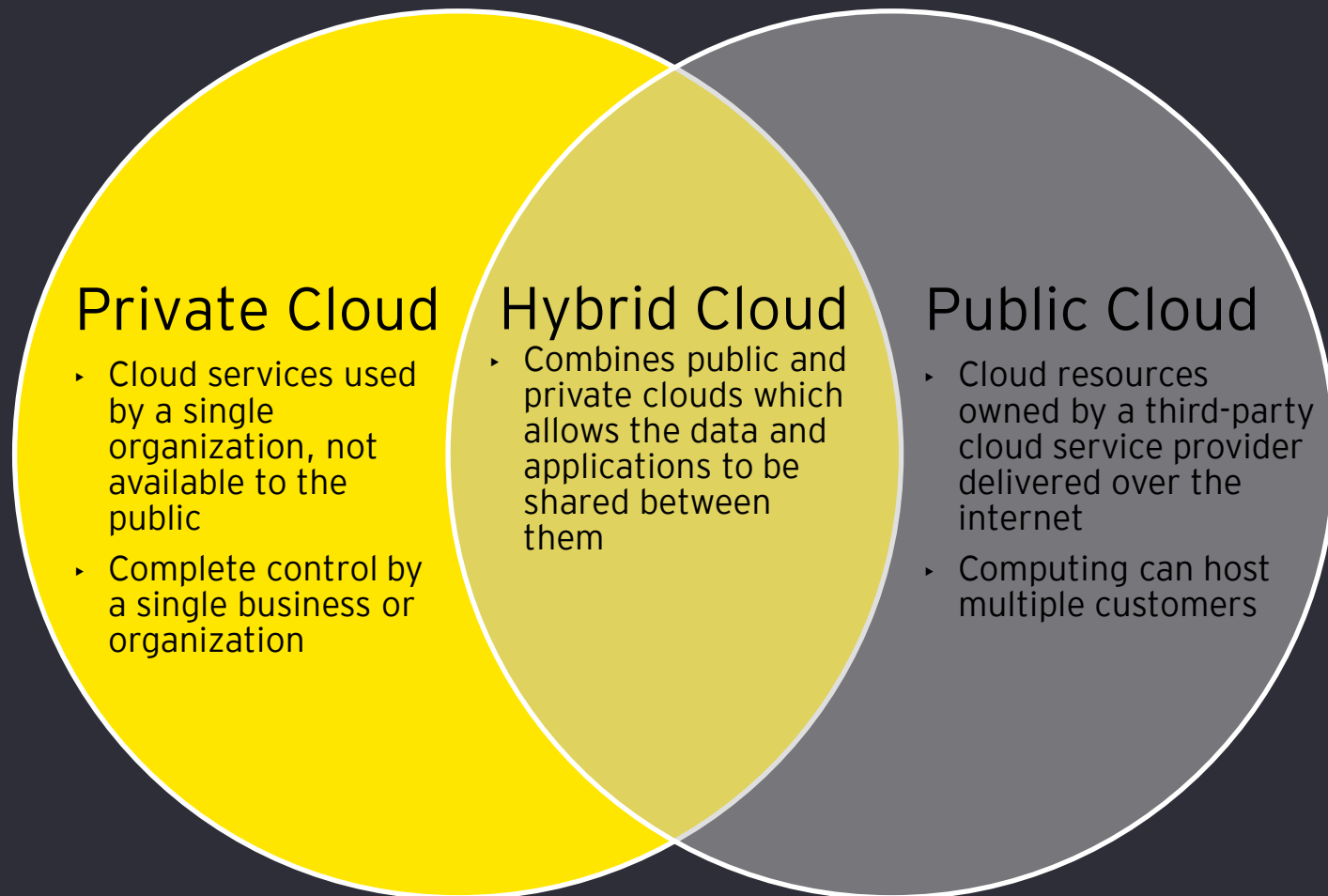
Cloud Provider Manages

Cloud Service Management



-  Customer Manages
-  Cloud Provider Manages

Cloud Deployment Models



Cloud Computing Benefits



Benefits of cloud computing



4 Cloud Computing Risk



Risk and Challenges with Cloud Services

Security and Privacy

Limited Visibility

Compliance

Vendor Lock-In

Reliability

What's the **top cloud issue** today?

75%
of enterprises and
90%
of cybersecurity
experts agree
that **cloud security**
is their **top concern**



Sources: ArcServe (2020)

 **FinancesOnline**
REVIEWS FOR BUSINESS

Understanding the risk and best practices

- ▶ Security and Privacy
 - ▶ Cloud service providers invest lots of resources and money in improving security
 - ▶ Public clouds can pose risk of data leak
 - ▶ Risk caused by human error, malicious cyber criminals, and insider threats
 - ▶ Data is as secure as your cloud service provider
 - ▶ Best Practices in Reducing Risk
 - ▶ Encryption
 - ▶ Two-Factor Authentication
 - ▶ Rotating Access Keys and Credentials
 - ▶ Auditing and Reviewing Environment

Understanding the risk and best practices

▶ Limited Visibility

- ▶ Moving to the cloud means losing many of the control and range of vision company have when hosting on-prem
- ▶ Impact business costs and performance
- ▶ Best Practices in Reducing Risk
 - ▶ Leverage automated monitoring and security tools provided by the company
 - ▶ Understand the Service Level Agreement

▶ Compliance

- ▶ Cloud service providers must have compliance certifications and audits they must pass
- ▶ Industry standards will also impact the cloud service provided (e.g. GDPR and HIPPA)
- ▶ Best Practices in Reducing Risk
 - ▶ Research the cloud service provider's certifications and audit reports

Understanding the risk and best practices

- ▶ Vendor Lock-In
 - ▶ Operational risk when using cloud services
 - ▶ Cannot easily transition to a competitor's product or service
 - ▶ Best Practices in Reducing Risk
 - ▶ Perform due diligence when researching a service
 - ▶ Use cost calculators to perform research to reduce cloud costs
- ▶ Reliability
 - ▶ Disruption of internet connection can lead to loss of service and data
 - ▶ Downtime due to outages can impact customers
 - ▶ Best Practices in Reducing Risk
 - ▶ Service Level Agreements (SLAs) from the service provider will guarantee compensation for these cases.
 - ▶ Ensure the company has business continuity plans to deal with service outages

5 SOC Reports



Address Cloud Service Risks

- ▶ Cloud Specific Controls – Controls which the cloud service provider fully manages
 - ▶ Physical and Environmental controls for all deployment types
 - ▶ Software Change Management when using SaaS
- ▶ Shared Controls – Controls which the cloud service provides the requirements for the infrastructure and the customer must provide their own control implementation
 - ▶ Patch Management
 - ▶ Configuration Management
 - ▶ Awareness & Training
- ▶ Customer Specific Controls– Controls which are solely the responsibility of the customer
 - ▶ Access Management
 - ▶ New User Approvals
 - ▶ Reviewing Access
 - ▶ Access deactivation

Soc Reports

- ▶ The SOC report is a comprehensive examination of the effectiveness of a business's internal controls and safeguards from an independent party.

REPORTS	CONTROL DOMAINS	AUDIT FOCUS	DISTRIBUTION
SOC 1 Assesses internal controls for financial reporting	<ul style="list-style-type: none"> • Transaction processing • Supporting IT general controls 	Service provider-defined: Control Objectives <i>Vary depending on the type of service provided</i>	Restricted <i>To users and auditors</i>
SOC 2 Assesses internal controls for compliance	<ul style="list-style-type: none"> • Infrastructure • Software • People • Procedures • Data 	Standardized: Trust Services Categories <ul style="list-style-type: none"> • Security • Availability • Processing integrity • Confidentiality • Privacy 	Restricted <i>To users, auditors, and specified parties</i>
SOC 3 A smaller scale SOC 2 report for marketing purposes			Unrestricted

Types of Soc report

REPORT TYPE	SOC REPORTS			TESTING COVERAGE		
	SOC 1	SOC 2	SOC 3	DESIGN	OPERATING	RESULTS OF TESTS
TYPE 1 Examines controls at a point in time	●	●		●		
TYPE 2 Examines controls over a period of time	●	●		●	●	●

Q&A

Resources

- ▶ <https://www.ibm.com/cloud/learn/benefits-of-cloud-computing>
- ▶ <https://docs.aws.amazon.com/whitepapers/latest/aws-overview/six-advantages-of-cloud-computing.html>
- ▶ [What Is Cloud Computing? A Beginner's Guide | Microsoft Azure](#)
- ▶ [▶ Percent of corporate data stored in the cloud 2022 | Statista](#)
- ▶ [What Is a SOC Report? | Moss Adams](#)

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