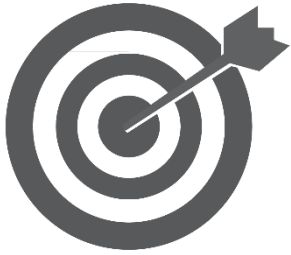Chapter 3.1

# Concepts on Cloud Trust Protocol and Transparency

# Aim

To equip the students with knowledge of cloud security and different elements of transparency in the cloud

# Instructional Objectives

- Define Cloud Trust Protocol and Transparency

- Describe the concepts involved in Cloud Trust Protocol

- Explain the elements of transparency

- Outline the semantics for elements of transparency

# Introduction to Cloud Trust Protocol

- Cloud Trust Protocol (CTP) : Mechanism or protocol by which cloud service users, also called as cloud consumers, generally ask for information about the elements of transparency.

- Main purpose of the Cloud Trust Protocol and transparency elements : To generate evidence-based confidence that all things that are claimed in the cloud are happening as per description

# Security and Trust in the Cloud

# Trust:

- Trust is an important aspect for decision making in auto-organized applications.

- In computer science, Scientist Marsh is studied computational trust for the first time.

- Marsh made trust model applicable to a distributed artificial intelligence (DAI) system in order to support agents to make trust-based decisions

# Marsh divided trust into three categories

**1. Basic Trust:**

This is the level of trust which represents the general trust disposition of agent

X ∈ 2 A at time t.

**2. General Trust:**

Given agents x, y ∈ A, the general trust T x (y) t represents the amount of trust that x has in y at time t.

**3. Situational Trust:**

Given agents x, y ∈ A, and a situation α, the situational trust TX (y, α) t represents the amount of trust that x has in y in situation α at time t.

# Cloud Trust Protocol Adaptability

The power of transparency to create digital trust is environment sensitive.

The CTP is proposed to serve two areas:

(a) Cloud consumers.

(b) Cloud providers

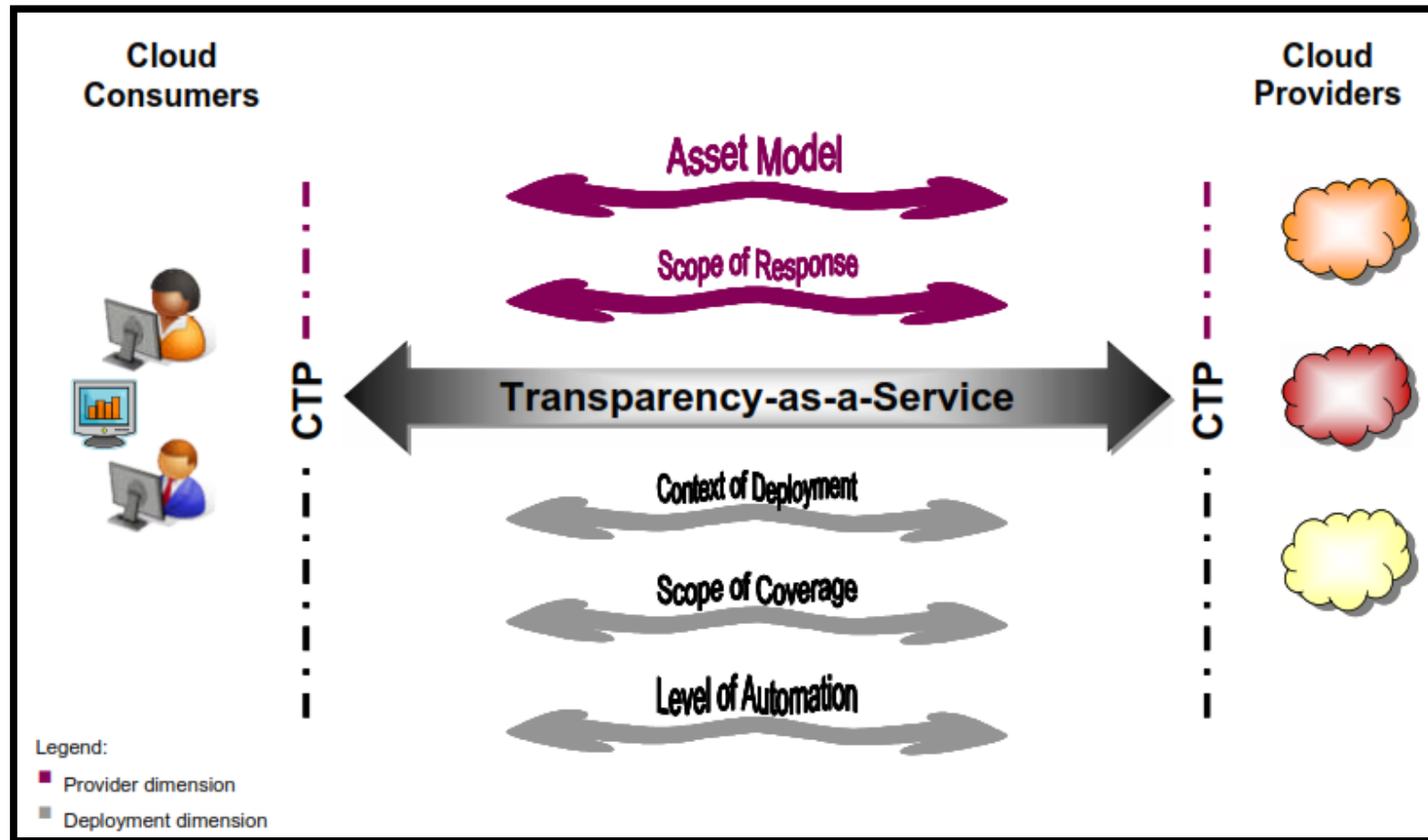# Dimensions of Cloud Trust Protocol Adaptability

Provider Dimension

- Asset Model

- Scope of Response

Deployment Dimension

- Context of Deployment

- Scope of Coverage

- Level of Automation

# Adaptability of CTP

# Sutton's Law and the Elements of Transparency

- Sutton's Law states an obvious reality for testing and diagnosis. Namely, In attempting to diagnose a problem, one should first do the tests that can confirm the most likely diagnosis.

- The corollary (now called Knode's Trust Corollary to Sutton's Law) articulates an analogous observed reality for evidence-based confidence in IT processing.

- Knode's Trust Corollary to Sutton's Law is targeted at the phenomenon of lost visibility into IT processing and data functions that have been moved into a cloud service condition and states

# Quiz / Assessment

| Q.1. | What is CTP? | | | |
|------|------|------|------|------|
| | a) | Cloud Trust Protocol | b) | composite Trust Protocol |
| | c) | Common Trust Protocol | d) | Cloud Transmission Protocol. |
| | | | | |
| Q.2. | Marsh applied a trust model to:BSE exchange | | | |
| | a) | General Trust | b) | Situational Trust |
| | c) | Distributed Artificial Intelligence (DAI) system | d) | Basic Trust |
| | | | | |
| Q.3. | Sutton's Law is applicable for: | | | |
| | a) | CTP | b) | Elements of Transparency. |
| | c) | IT Audit charter | d) | Software Applications |

# Quiz / Assessment

| Q.4. | Which are the deployment dimensions of Cloud Trust Protocol Adaptability: | | | |
|------|------|------|------|------|
| | a) | Context of Deployment | b) | Scope of Coverage |
| | c) | Level of Automation | d) | All of the above. |
| | | | | |

# Activity

**Activity Type: Online**                                              **Duration: 60 Minutes**

**Description:**

Cloud Security alliance has announced that "Cloud Trust Protocol Provides Enterprises with the Confidence To Bring More Sensitive and Valuable Business Functions to the Cloud". Prepare a presentation of 10-12 slides explaining the statement critically.

# Subjective Assessment

1) What is Cloud Trust Protocol? How to evaluate the trust between

Cloud consumer and the service provider?

2) Explain in brief Sutton's law of elements of Transparency?

3) What is CTP adaptability? Focus on provider dimensions and deployment dimensions.

# Summary

✓ In this chapter we have studied the what is cloud security and what are the different elements of cloud security. First and the very important aspect of cloud security is CTP i.e. Cloud Trust Protocol. We have seen how to measure the trust in CTP and which are various elements of transparency.

✓ The Cloud Trust Protocol (CTP) is the mechanism or protocol by which cloud service users also called as cloud consumers generally ask for information about the elements of transparency. The main purpose of the Cloud Trust Protocol and the transparency elements is to generate evidence-based confidence that all the things that are claimed in the cloud to be happening are as per described in the agreement.

✓ Trust and security are two sides which have become crucial to guarantee the healthy development of cloud platforms, providing solutions for concerns such as:

✓ Lack of privacy and protection.

✓ Guarantee of security and author rights.

# e-References

- The website was referred while developing content for Cloud trust protocol on 3rd June 2016 http://assets1.csc.com/cloud/downloads/wp_cloudtrustprotocolprecis_073010.pdf

- The website was referred while developing content for Cloud trust protocol on 3rd June 2016 http://www.csc.com/cloud/insights/57785-cloudtrust_protocol_and_cloud_transparency

- The website was referred while developing content for Cloud trust protocol on 3rd June 2016 http://scap.nist.gov/events/2010/itsac/presentations/day2/Security_Automation_for_Cloud_Computing-CloudTrust_2.0.pdf

- The website was referred while developing content for Cloud trust protocol on 3rd June 2016 https://cloudsecurityalliance.org/media/news/csa-announces-licensing-agreement-with-csc-for-cloudtrust-protocol/

# External Resources

1. *Pethuru Raj - Cloud Enterprise Architecture-– CRC*

2. *Mark Fenwick, Stefan Wrbka , Flexibility in Modern Business Law: A Comparative Assessment -– Springer*

3. *Federal Cloud Computing: The Definitive Guide for Cloud Service Providers –*