Cloud Security - Summary Notes

English Notes

4.2.2 The Google Cloud

Google operates globally with a secretive infrastructure. It places data centers where cheap renewable energy is available, close to other centers for low latency, and near Internet hubs. They buy large land areas for future expansion or energy production.

4.3 Understanding Hypervisors:

Hypervisors (Type 1 and Type 2) virtualize hardware. Type 1 runs directly on hardware (e.g., VMware ESXi), Type 2 on host OS (e.g., VirtualBox). Full virtualization simulates entire hardware.

4.3.2 VMware vSphere:

vSphere is a suite that manages virtualized infrastructure. It includes vCompute, vStorage, vNetwork, vCenter, VMotion, DRS, and more. These help manage virtual machines and resources efficiently.

4.4 Understanding Machine Imaging:

Machine imaging means making full system copies (like Amazon AMI) to be restored or reused. This helps in quick deployment or migration.

4.5 Porting Applications:

Simple Cloud API helps apps work on multiple clouds. AppZero VAAs isolate apps from OS, enabling easy portability. Stateless cloud models make app deployment efficient.

4.6 Capacity Planning:

Focuses on future resource needs. Involves monitoring workload (CPU, RAM, etc.), testing limits, predicting growth, and scaling (vertically or horizontally).

4.7 Baseline and Metrics:

Measure workload (page views, DB transactions). Track total (WT), average (WAVG), max (WMAX), and total work (WTOT) to plan better capacity.

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4.8 Network Capacity and Scaling:

Three parts: server traffic, cloud to server, cloud to user. Scaling types:

- Vertical (stronger server)

- Horizontal (more servers)

Load testing helps identify bottlenecks and resource limits (resource ceiling).

Cloud Security - Summary Notes

Hinglish Notes

4.2.2 Google Cloud:

Google data centers sasti aur renewable energy wali jagah pe hote hain. Location latency, cooling water, aur tax benefits ke basis pe decide hoti hai.

4.3 Hypervisors:

Type 1 (direct hardware pe run karta hai) - jaise VMware ESXi. Type 2 (host OS ke upar) - jaise VirtualBox.

Full virtualization = puri hardware simulation.

4.3.2 VMware vSphere:

vSphere ek management suite hai jisme vCompute, vStorage, vNetwork, vCenter jaise tools hain.

VMotion jaise features allow karte hain ki VM migrate ho without downtime.

4.4 Machine Imaging:

Pura system ek image (copy) me save hota hai - jaise Amazon Machine Image (AMI). Use future me reuse ya restore kar sakte hain.

4.5 Porting Applications:

Simple Cloud API apps ko multiple clouds me kaam karne laayak banata hai. AppZero VAAs application ko OS se alag rakhte hain, jisse portability badhti hai.

4.6 Capacity Planning:

Future demand ke liye system plan karna. Bottlenecks identify karna (CPU, RAM, etc.), aur resources ko scale karna (vertical ya horizontal).

4.7 Metrics and Baseline:

Web hits aur DB transactions ko measure karke workload ka total (WT), average (WAVG), max (WMAX) aur total work (WTOT) nikalte hain.

4.8 Network Capacity & Scaling:

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Network traffic teen jagah assess hota hai - server, cloud, aur user tak.

Scaling:

- Vertical: ek hi system me zyada power add karna

- Horizontal: aur systems/machines add karna

Load Testing: system ka limit aur bottleneck identify karna.