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Cloud Security

Securing what you can't touch



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Presentation to Malaysia Government Cloud Computing Forum

HUAWEI TECHNOLOGIES CO., LTD.

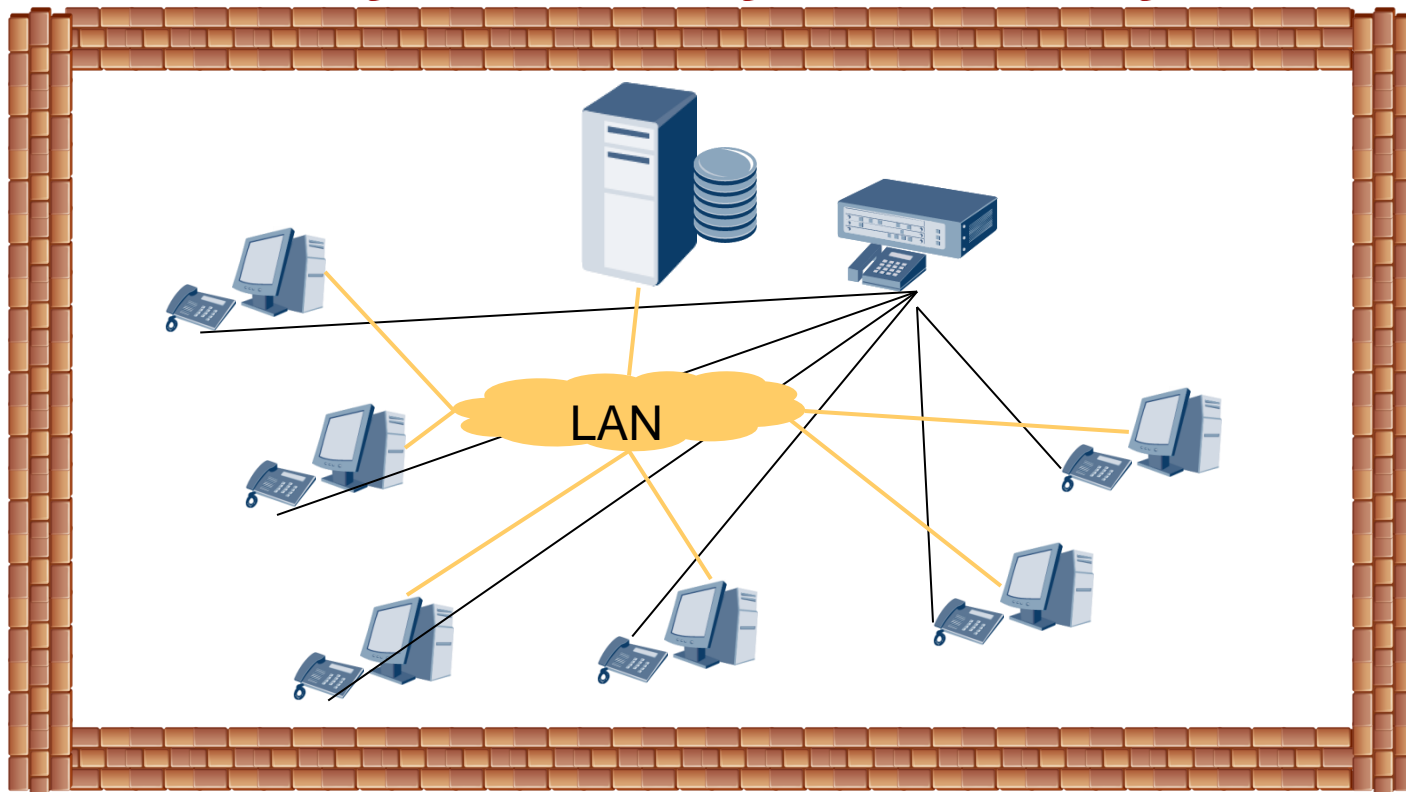


Why worry about cloud security?

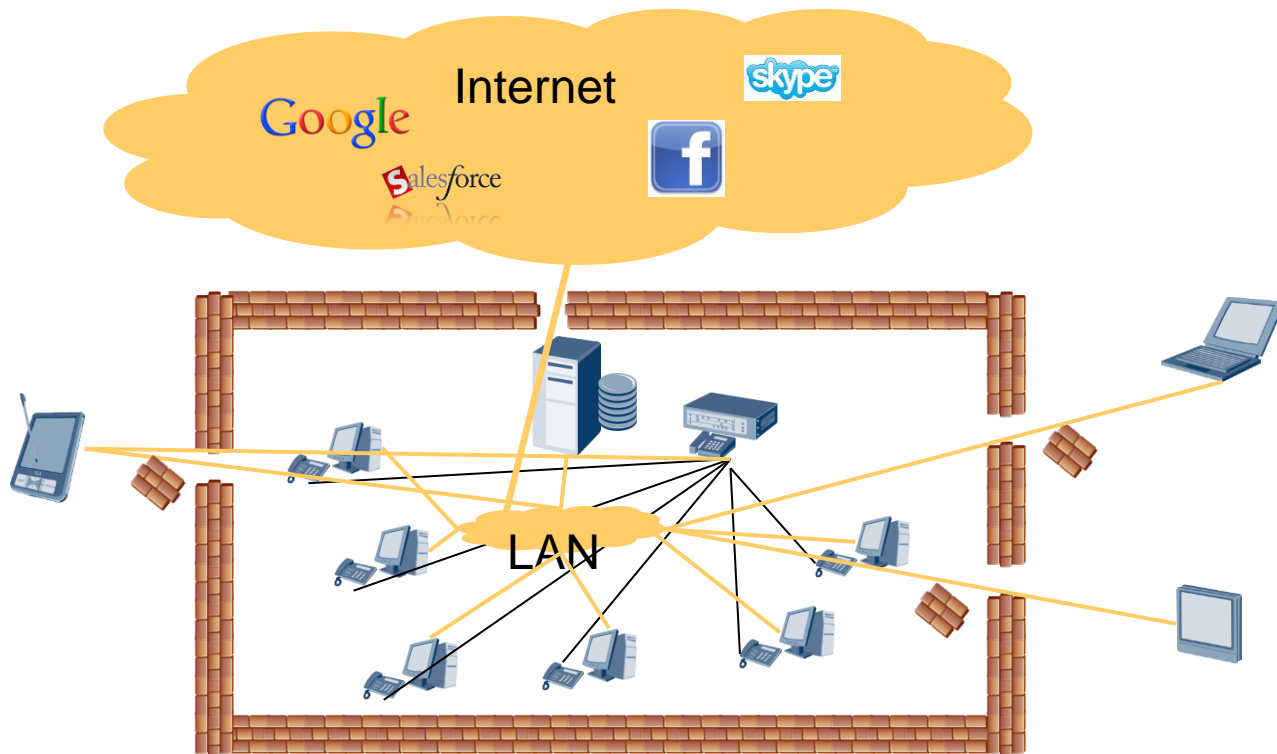


What if it rains?

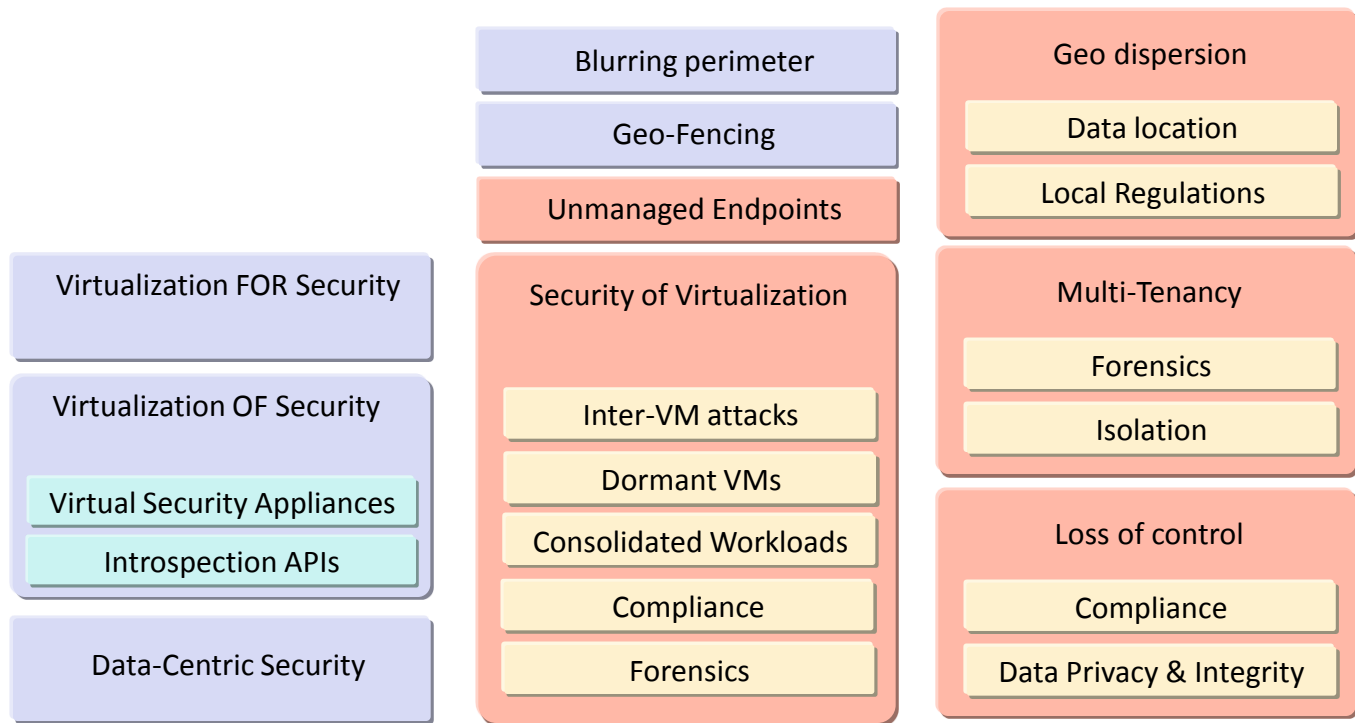
Yesterday, security was easy



Today, security is more complicated



Cloud brings new security challenges



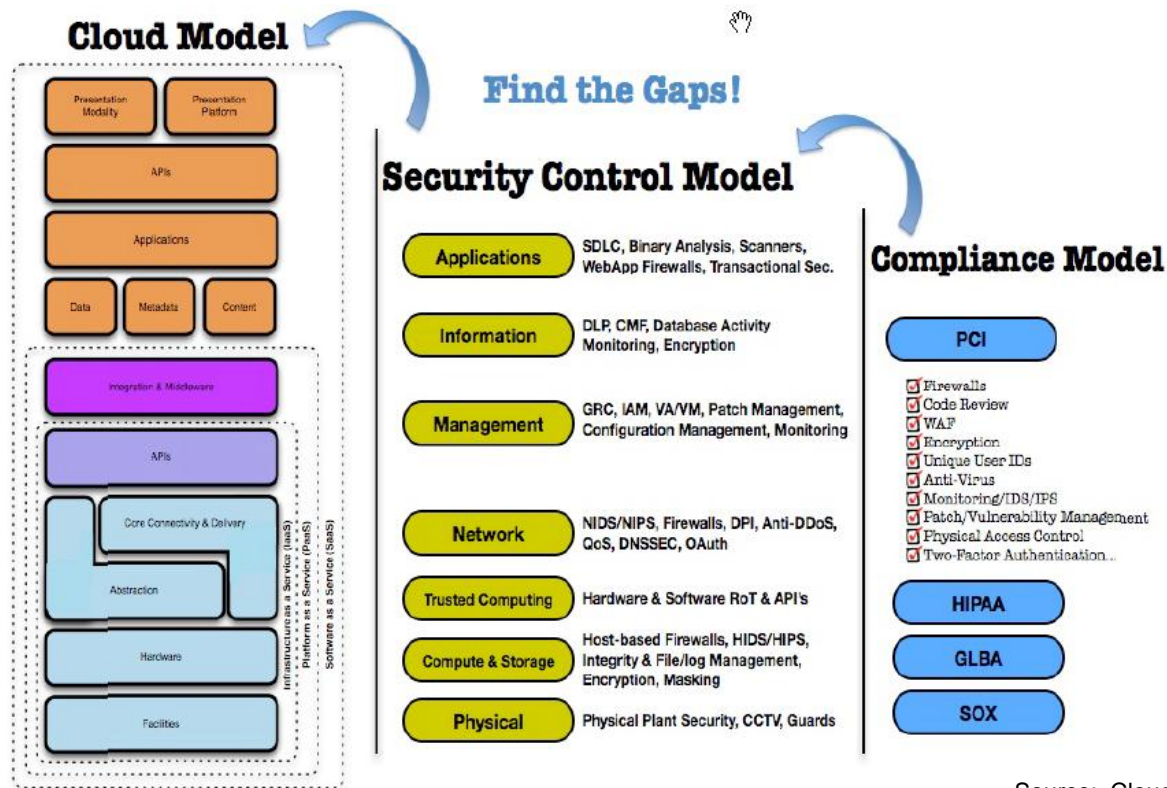
Trend
Challenges

VIRTUALIZED DATACENTER PUBLIC CLOUD

Source: Huawei



Security Challenge: Find the Gaps



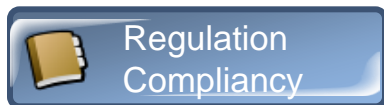
Source: Cloud Security Alliance

Top Threats to Cloud Computing

- **Abuse and Nefarious Use of Cloud Computing**
- **Insecure Application Programming Interfaces**
- **Malicious Insiders**
- **Shared Technology Vulnerabilities**
- **Data Loss/Leakage**
- **Account, Service & Traffic Hijacking**
- **Unknown Risk Profile**

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Security: Sorting out the risks



Meet government/industry requirements



Protection against for administration actions



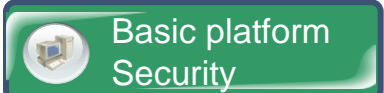
Securing critical information storage



Establishing trusted network connections



Isolating virtualization problems



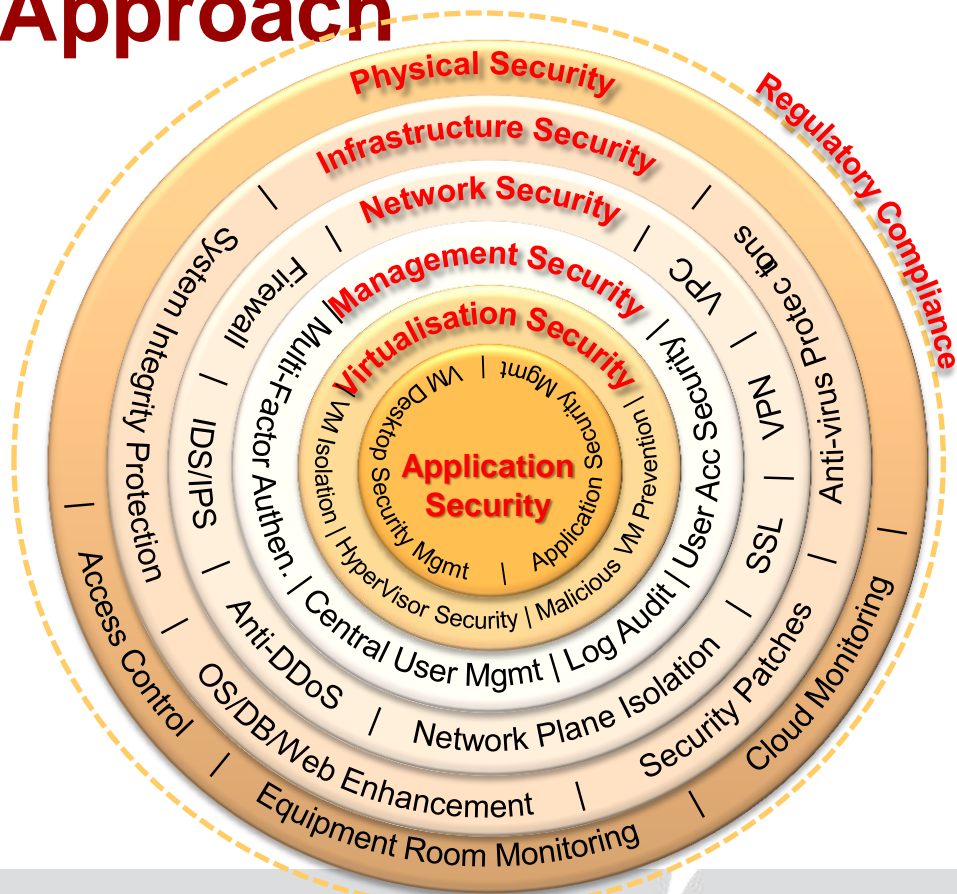
Protecting hardware and network



Ensuring the security of the data center against intrusion

Huawei Layered Approach

- Physical Security
- Infrastructure
- Network
- Management
- Virtualization
- Application
- Regulatory



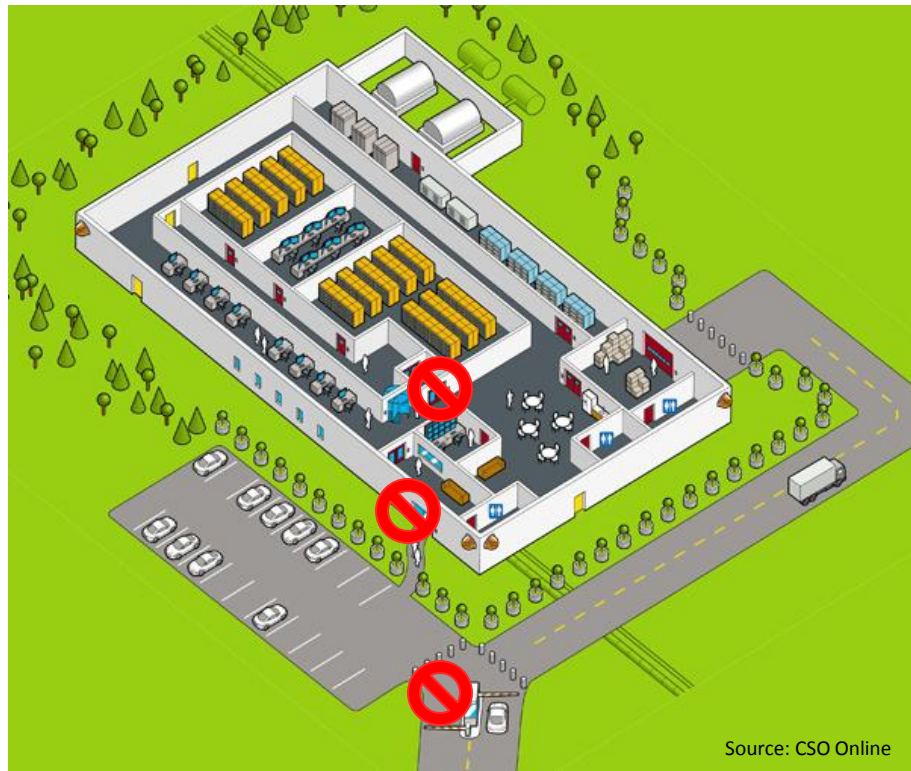
First: Create a security plan

- Find an experienced partner
- Define requirements
- Document attack vectors
- Plan defense-in-depth
- Test on paper
- Implement
- 3rd Party “black box” test

ID	Task Name	Duration	97		28 Jul '97							4 Aug '97							11 Aug '97						
			F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
1	Establish the need	2d																							
2	Set target date	1d																							
3	Establish leadtimes	1d																							
4	Book venue	1d																							
5	Choose advert location	1d																							
6	Agree format	2d																							
7	Devise tests	5d																							
8	Job description	2d																							
9	Set criteria	1d																							
10	Write advert	2d																							
11	Place advert	1d																							
12	Shortlist	3d																							
13	Invite candidates	1d																							
14	Conduct interviews	3d																							
15	Take decision	1d																							
16																									
17																									

Data Center Security – Protect the Jewels

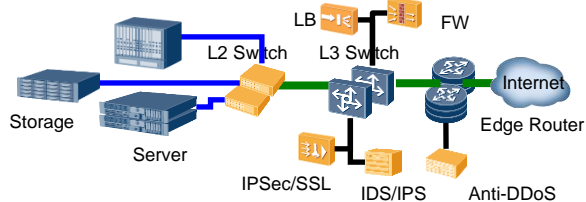
- **Secure location**
- **Diverse, protected utilities**
- **Robust building construction**
- **Site entry control**
- **Building entry control**
- **Data center entry control**
 - Biometrics
 - “Man trap”
 - 2-Factor authentication



Cloud Environment Security

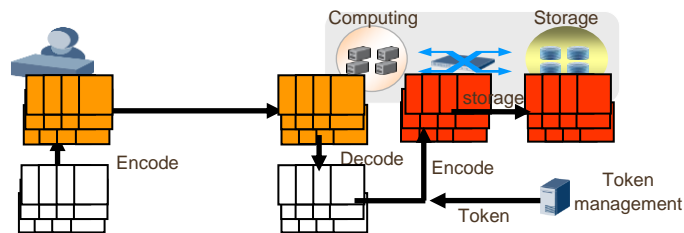
Network Security

- Security Domain Division and Network Isolation.(vLAN, vFirewall...)
- Border Protection.(anti-DDoS,IDS/IPS...)
- Transmission Security.(SSL/VPN...)



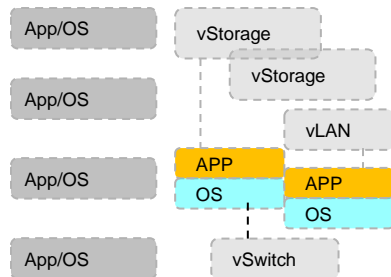
Data Security

- Isolation of User Data
- Data Access Control
- Information Protection



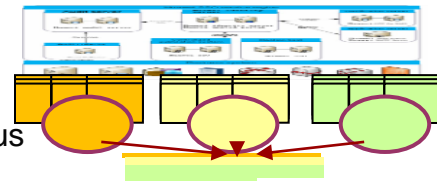
Virtualization Security

- VM isolation.
- Hypervisor security.
- VM protection.(anti-spoofing...)



User Security

- Identify and Access Control.
- Priority Management.
- Operation Log.
- OS/DB security enhancement/Anti-Virus



Application security: Must be Built in

- **Data separation** – dedicated databases for applications
- **User authentication** – two-factor identification
- **Role-based access** – limit user and admin capabilities
- **Exploit protection** – ensure compliance with Open Web Application Security Project (OWASP) Top 10
- **Application patching** – automated and monitored
- **Data encryption** – by the application with secure control of user keys



Huawei SingleCLOUD Security

- **Perimeter**

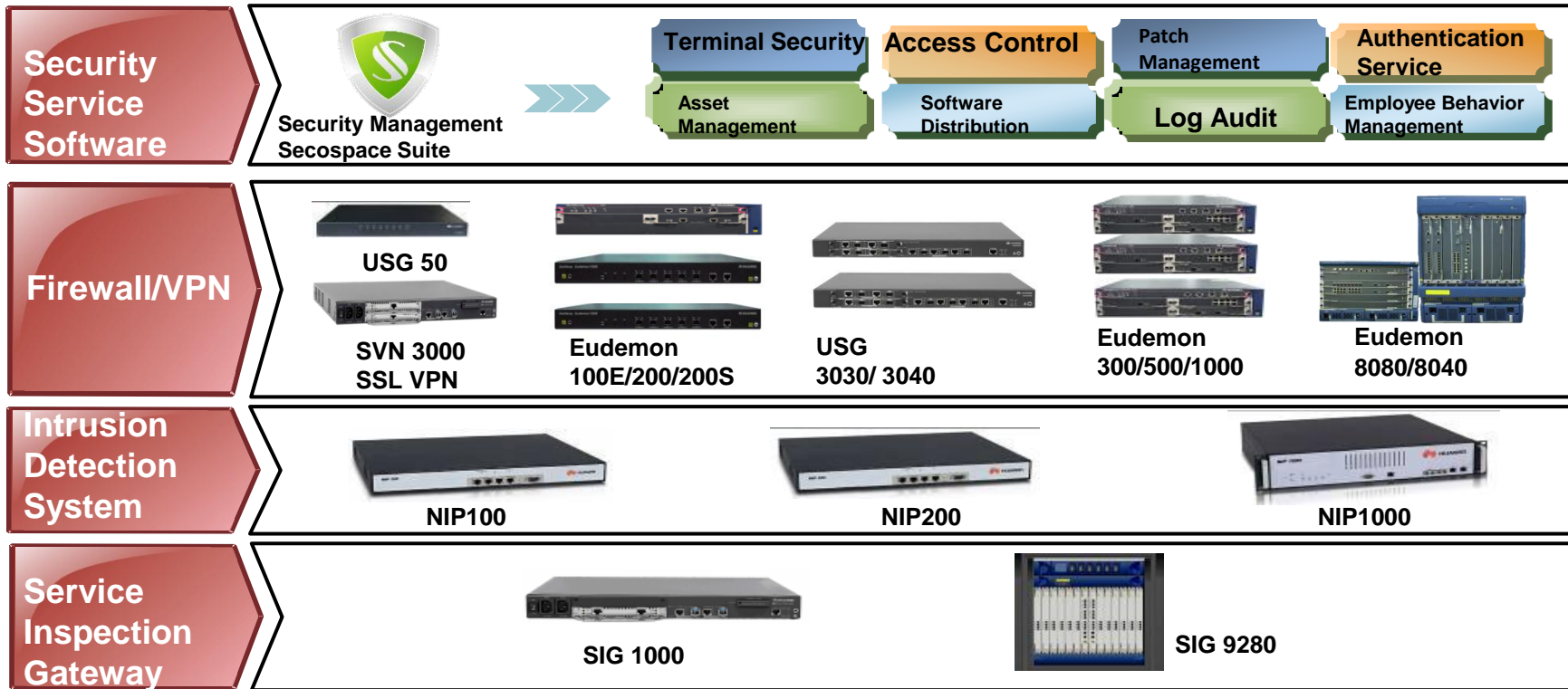
- Eudemon firewalls, IDS/IPS, Anti-span, Anti-virus, Security Zones

- **Cloud Software**

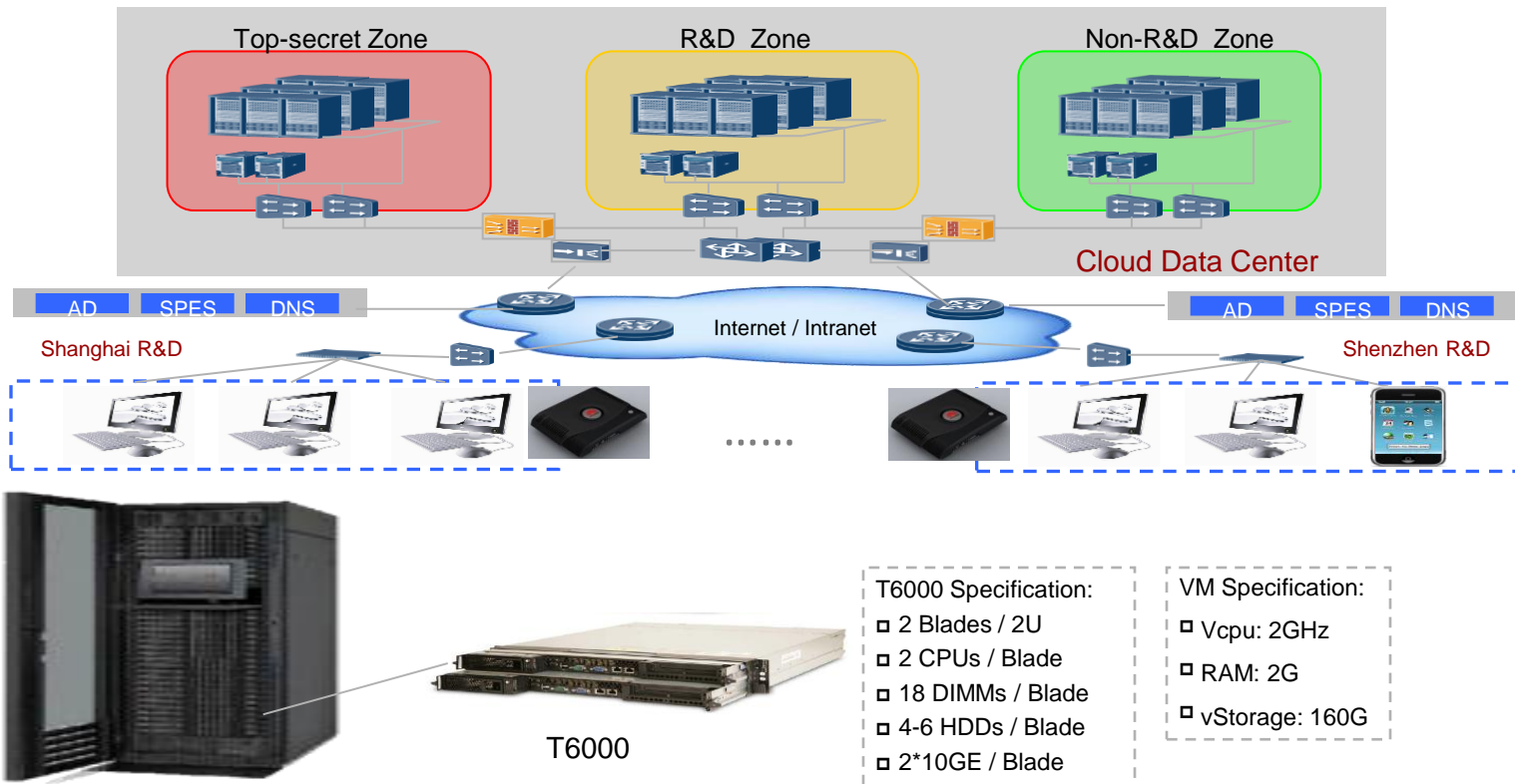
- VM Protection: vFirewall, vIDS/IPS, inter-VM protection, security zones
- OS Protection: pre-hardened, central patching
- Storage Protection: VM association, clearing, encryption
- Admin Protection: role-based security, multi-factor ID, logging

- **Network**

Huawei Security Products



Security Fabric in Huawei R&D Cloud



Summary

- **IT security is complicated**
- **Cloud increases complexity**
- **Solution is a “systems” problem**
- **Good partners are key to successful security**



Thank you

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