# Internet Data Infrastructure of QTSC

# QTSC's Data Center

- Data Center Infrastructure
- Cloud Computing System
- Security System
- List of Services

# Data Center Infrastructure

❖ **The Data Center of QTSC (QTSC-IDC) is built, invested on modern Information Technology infrastructure:**

- Using the newest application/technology: Cloud computing, Software defined network (SDN), MPLS/VPN, RPR/DPT… providing high, stable Information technology services to customers
- High redundancy, secret and security: Using security solutions from the well-known production providers: Checkpoint, Cisco, TrendMicro, Imperva, ArcSight, Radware…
- Human resources: long-time experience, using ISO 27001, ISO 9001 for operation and management.
- Agreeing to the Nation and Vietnam Standards:
  - TIA942 – Tier 3.
  - BS 5839 & TCVN 6160 (fire system).
  - ANSI/TIA/EIA-606A.

# Data Center Infrastructure

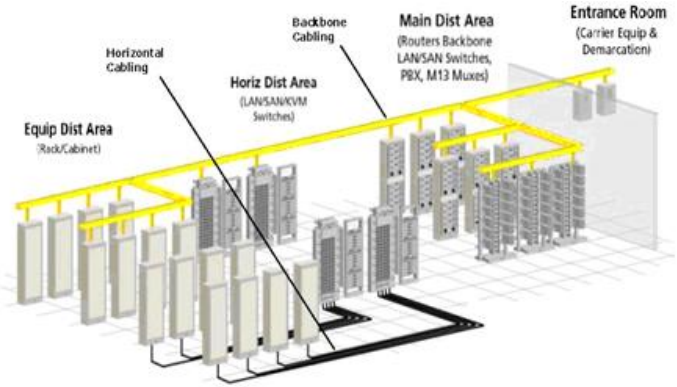
## ❖ Data Center Location:

- QTSC-IDC is a separated building, far away residential areas.
- It is designed only for Data Center, located inside QTSC.
- It is protected, security

# Data Center Infrastructure

## ❖ Standard of electric technology:

- ➢ Electric current:
  - 4 input currents
  - Undergrounding
  - Ring connected
  - The total electric power up to 40MW
  - Provide electric to many transformer stations.
- ➢ Electric resource backing-up:
  - 02 x UPS (N + 1) system
  - 02 generators (1,200KVA/generator).
- ➢ Chilly system:
  - Precision air-conditioners run by N+1 mode
  - The temperature: 21$^{o}$C ± 1$^{o}$C
  - Humidity: RH 55% ± 5%



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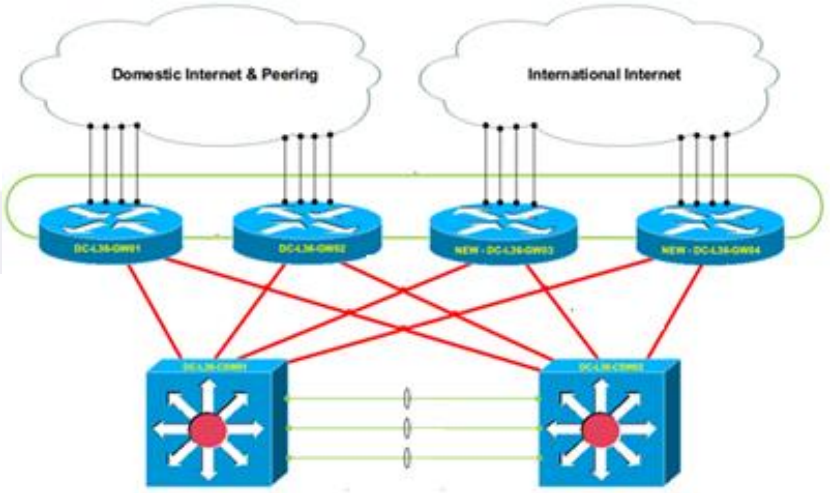
# Data Center Infrastructure



- Internet connections
  - Connecting by fiber optical cables directly to Vietnam's IXPs: VNPT, FPT, Viettel, CMC, SCTV, MobilefoneGlobal…
  - Connecting only one hop to the International ISP PCCW, NTT, TATA…
  - Bandwidth is provided for customers' need. It is upgraded and configured from QTSC network system rapidly.
  - Supporting: routes optimization, guarantee the Service level agreement (SLA) for customers.

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# Cloud Computing System

## Cloud computing platform:

Designed into module architecture, this creates flexibility for the system, and is available to extend a system

- **Computing, data transfer modules:** using technological server of Cisco, IBM…
- **Storage, back-up modules:** using technological storage of NetApp, tape backing-up from IBM, Symantec.
- **Management, service providing, virtualization modules:** the parts service providing, virtualization, monitor and storage management are based on VMWare solution.
- **Security modules:** Multi-layer Firewall, Web Application Firewall (WAF), (IPS/IDS). Anti-virus, Anti-spam parts: used the high technology of the well-known producers: Checkpoint, Cisco, IBM, TrendMicro, ForeScout…



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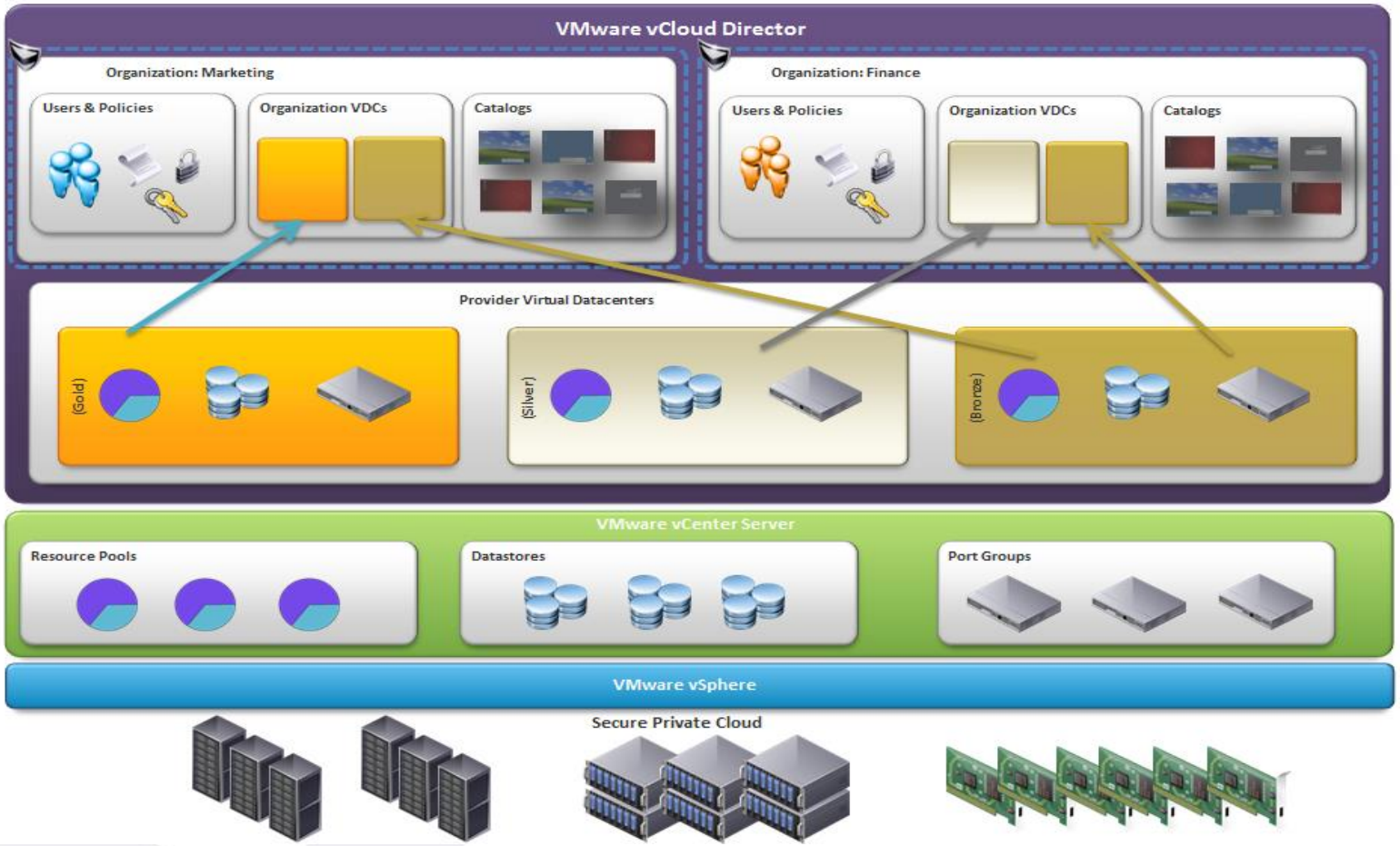
# Cloud Computing System

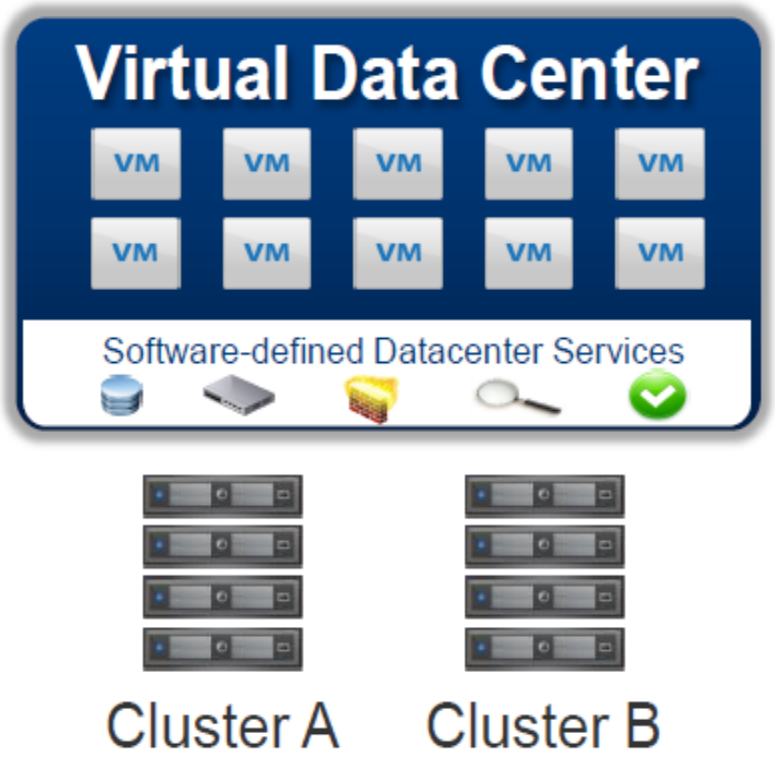



Computing system is held on vCloud platform, VMWare virtualization is based on virtual data center (vDC). It safe and secure

# Cloud Computing System

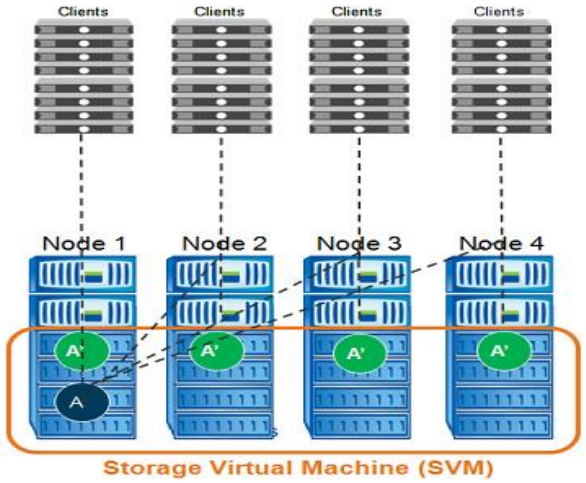
## ✓ Server Systems

- Using powerful physical servers producers: IBM, Cisco… These have power configuration (CPU, RAM)… to optimize computing resources.
- These are operated in the cluster mode which create high backing-up, availability for VMs if the physical servers get error.
- Each server has two 10Gbps ports for Internet connection. Also, It has two 16Gbps ports connected to SAN.
- SAN and SAN switch have parallel backing-up



# Cloud Computing System

## ✓ Storage System




- SAN cluster have 04 controllers (nodes), running on DataONTAP 9.1 operating system.
- The controller supports NAS (2/10Gbps) and FC SAN (4/16Gbps).
- Providing multi-tenant model
- Can be extended space to thousands PB (petabyte).
- Data is moved flexibly between nodes.
- Support RAID 5
- Speed of controller is up to 80,000 IOPS
- Compressing, de-duplication supporting



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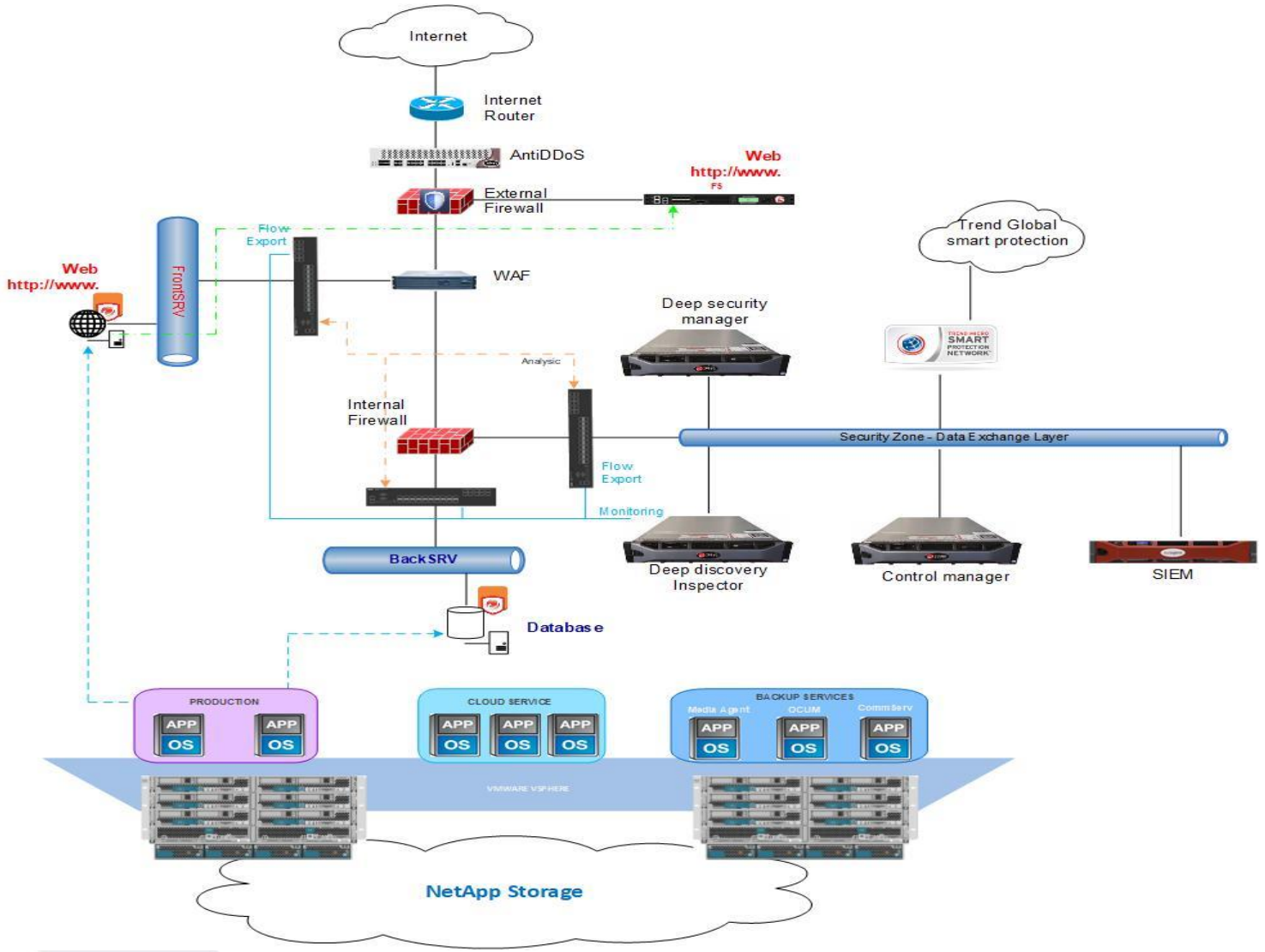
# Security System

- ✓ **Security productions/Application:**
  - Intrusion protection system (IPS).
  - Multi-layer firewall.
  - Web Application Firewall (WAF).
  - Privileged Identity Management (PIM).
  - Security Information and Event Management (SIEM).
  - Antivirus system.
  - Deep Discovery Inspector (DDI).
  - VPN encrypted.

# Application System Topology



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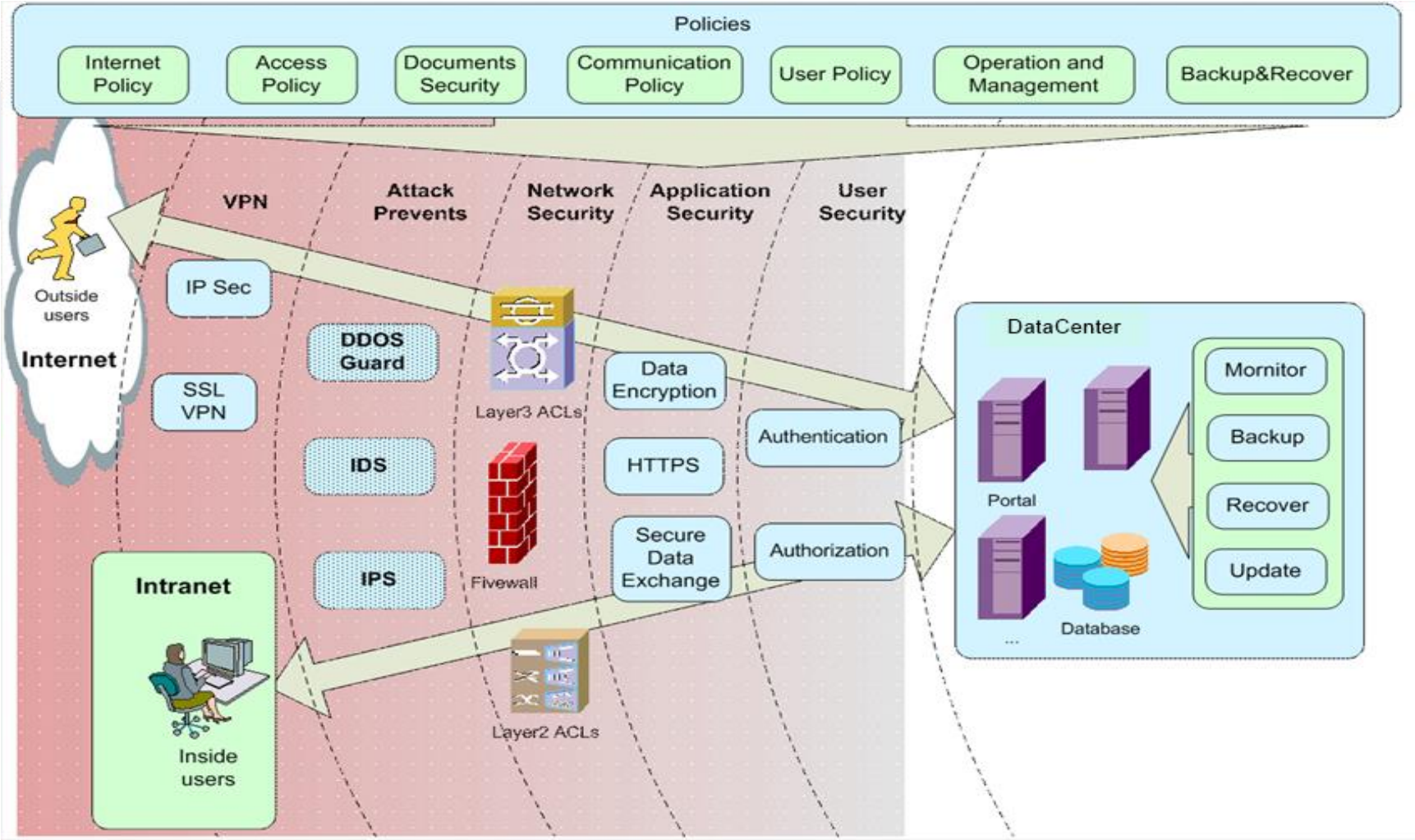
# Information Security Policies



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# List of Services

- **Internet Services:**
  - Broadband Internet
  - Leased line Internet
- **Cloud computing Services:**
  - Cloud server
  - Private cloud
  - Backup & Restore
- **Datacenter Services:**
  - Colocation Server
  - Colocation Rack
  - Private colocation space

# List of Services

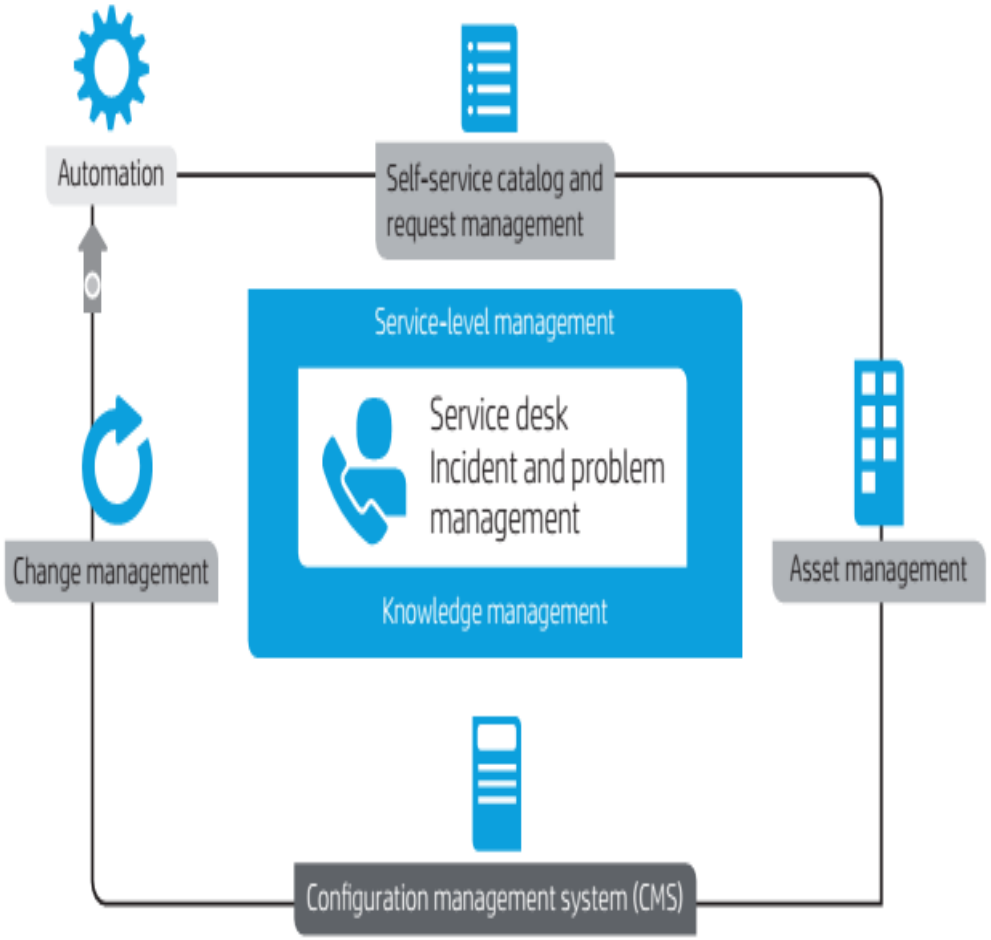
- **Security Services:**
  - AntiDDOS
  - IPS/IDS
  - APT prevention
  - Antivirus
  - Multiplayer firewall
  - Load balancing
  - Web application firewall
  - Early Monitoring and Warning
  - SSL digital certificate
  - Privilege password management

- **Other Services:**
  - Mail server
  - DR Site
  - Data digitization service

Refer to: https://telecom.qtsc.com.vn/

# Supporting Service

✓ Help-desk services:




- **Procedure management:**
  - User requirement
  - Error, problem
  - Changing
  - Property
  - Customers
  - Contract
  - ….



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# Certification

TÜV NORD Vietnam

CERTIFICATE

Management system as per
**ISO 9001 : 2015**

In accordance with TUV NORD Vietnam procedures, it is hereby certified that

QTSC SOFTWARE CITY

**QUANG TRUNG SOFTWARE CITY DEVELOPMENT COMPANY LTD**

**Telecom Building & Building No 3, Quang Trung Software City,**
**Tan Chanh Hiep Ward, District 12, Ho Chi Minh City,**
**Vietnam**

applies a management system in line with the above standard for the following scope

**Providing telecom - internet services, office leasing services and utilities services for operating units at Quang Trung Software City.**

Certificate Registration No. TNV168160128
Audit Report No. 2.5-VN800047/2017

Valid from 2018-01-04
Valid until 2020-01-09
Initial Certification 2017-01-10

Le Sy Trung - General Manager
TUV NORD Vietnam Ltd.

TUV NORD Vietnam Ltd.,
Floor 12th, T.I.D Building, No. 4 Lieu Giai,
Ba Dinh District, Hanoi, Vietnam
2018-01-04

This certification was conducted in accordance with the TUV NORD Vietnam Ltd. auditing and certification procedures and is subject to regular surveillance audits.

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# Thank you!

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