



Real DaaS Platform
Access for **smart** work anywhere

Real DaaS Platform Cloudin Introduction

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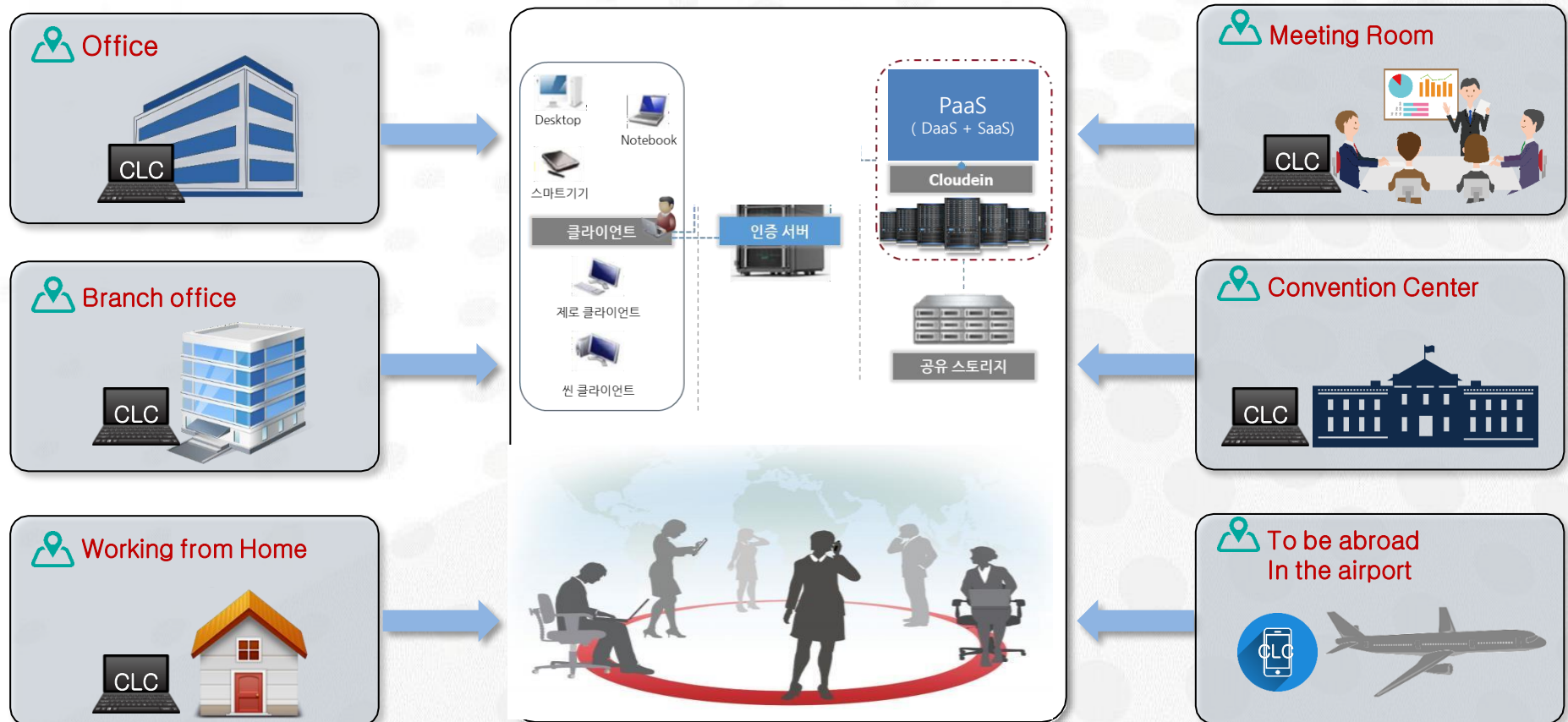
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What is smart work in ICT?

1. What is smart work in ICT?

Information and communications technology environment
where you can work or work anywhere, anytime, any devices

An environment where you can access and work in your own work environment
anytime, anywhere through a variety of devices



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What are two ways to build a smart work environment?

1.1 VDI Method

2. Problems with VDI Method

3 RDI Method

04 Comparison of VDI and RDI Methods

01 VDI (Virtual Desktop Infrastructure) Method

VDI provides multiple independent virtual machines on the hypervisor in a single server that is a method of creating and assigning it to each user.

VDI intrusion of user-to-user domain is difficult and can only be used within allocated resources



- ✓ VDI shares CPU and memory resources of a single server and shares them with access users
- ✓ VDI is available for up to 60 users per a server and recommended 30 users
 - CPU : Xeon 2.8GHz 14Core *2CPU (Total 28Core)
 - Memory : 256GB
 - When memory is allocated based on 4GB per user , approximately 60 users can use it
 - If the total memory is 256GB.
 - For 200 users, approximately 4 servers are required. Redundancy (HA) configuration takes 8 servers
- ✓ One VDI management server required. Two servers required for redundancy (HA) configuration.
 - CPU : Xeon 2.4GHz 8Core *2CPU (Total 16Core)
 - Memory : 32GB
- ✓ Requires San Switch and Storage
- ✓ High initial cost. High cost of additional expansion. More expensive with GPU
- ✓ VDI License Fee , MS VDA License Fee are incurred every year.
- ✓ High annual maintenance cost

02 Problems with VDI Method

Hypervisor Security Weak Point

A hypervisor is software that creates and drives [Virtual Machine\(VM\)](#)

- ✓ Poor security of the hypervisor that manages the virtual machine can be damaged all virtual users running on that server.
- ✓ The ease of internal VDI attacks is a weakness in VDI, which means that various attack paths and patterns exist through the interconnectivity between virtual machines inside the system.

- ✓ Packet sniffing, cracking, Ddos and malicious code propagation from the infected virtual machine to other virtual machines may be easy.

This is difficult to detect with IPS (intrusion prevention) and IDS (intrusion detection) which are function of existing Firewall.

- ✓ Infection from malicious code may occur during auto-scaling such as creation, extinction and movement of a virtual machine.

As infected virtual machines are copied the propagation of malicious code can be very fast and easy.

And it can be done between other physical platforms connected to the cloud.

- ✓ Hypervisor representative security weak point :

VM kernel-based rootkit attack, cache-based subchannel attack, ROP (Return Oriented Programming) attacks.

When use preventive techniques for this problems such as reduced memory and CPU performance occur.

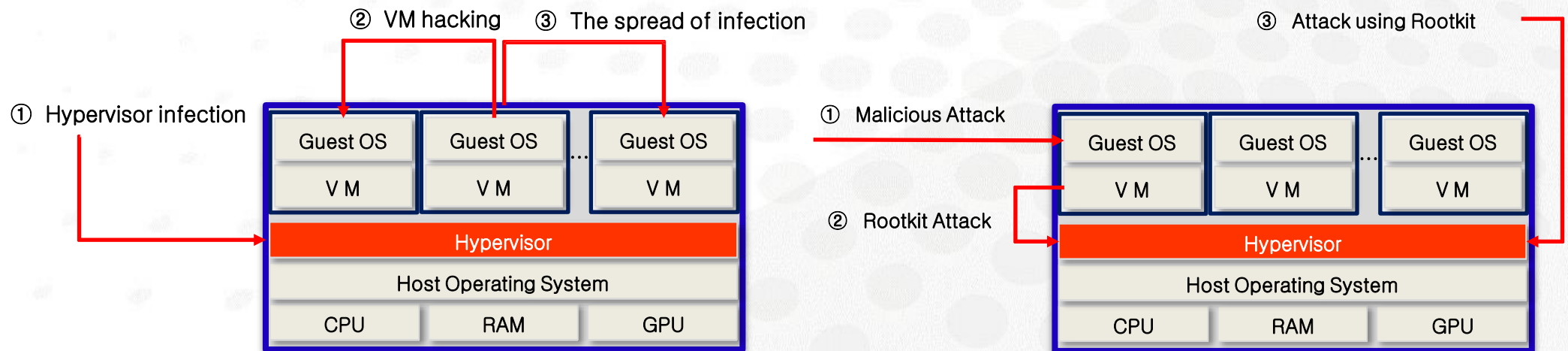
Hypervisor has underlying structural weak point.

- ✓ Open Source-based verification and issue response time are long and there is a version upgrade issue accordingly.

02 Problems with VDI Method

Hypervisor Security Weak Point

A hypervisor is software that creates and drives [Virtual Machine\(VM\)](#)



2. What are some ways to build a smart work environment?

02 Problems with VDI Method

Restrictions on usage than Normal Desktop

- ✓ Poor compatibility with various security softwear
- ✓ VDI supports only one physical monitor, so when using the desktop display extension option, you need to scroll to the left and right arrow keys on one monitor to switch the screen.



Switch the screen



Where is my work window???



02 Problems with VDI Method

Problems with sharing resources on a single server

- ✓ Bootstorm occurs when you turn on your computer at the same time during Rush Hour, which takes a lot of time to boot.
- ✓ Slowing down when scanning for virus.
- ✓ In the event of a server failure, all users using the server are stopped using it at the same time.
- ✓ Unable to transfer large files between users using virtual machine
- ✓ Video conferencing is not possible between users using virtual machines.

Difficulty in maintenance operations

- ✓ Difficulty in setting up and changing environments requires support from VDI providers.
- ✓ VDI is low in scalability and flexibility , so additional deployments are costly and time consuming.
- ✓ VDI has high maintenance costs every year.

03 RDI (Real Desktop Infrastructure) Method

RDI is opposite concept to VDI which provides a typical desktop computer environment as a virtualized environment.

It is a method of providing **1:1 physical server to desktop computer** without using virtualization solutions.

- ✓ RDI can be configured with Blade Server or NUC PCs with network and power integration
- ✓ RDI is an independent and individual physical hardware method, so it is completely unaffected by the entire system and other users during multiple concurrent Log-in and concurrent using
Because RDI is an independent , individual physical hardware method that affects only one piece of equipment in the event of a failure and does not affect other user equipment at all.
- ✓ RDI provides the flexibility, scalability and convenience of initial deployment capacity and further expansion
It can be expanded rapidly and freely from starting with 8 users the composition to infinity
- ✓ RDI offers a wide range of hardware choices
- ✓ **Low initial deployment costs. Low cost of additional expansion.**
- ✓ **RDI enables relatively low budget when Nvidia GPU building interlocks**
- ✓ **Low annual maintenance costs**

03 RDI (Real Desktop Infrastructure) Method

RDI Hardware Configuration Example

✓ Type I : Blade Server

- In the case of Blade Server, 45 Cartridge is configured in one Chassis, and each of the 45 users can use it exclusively.
- **One Full Rack** accommodates Cartridge for a **total of 352 users**.
- When the number of users increases, it can be expanded immediately and easily in units of Chassis.

One Cartridge Specifications

CPU : Xeon 2.8GHz 8 Core * 1CPU (8Core)

Memory : 8GB SSD : 256 GB

✓ Type II : NUC PC

- In the case of NUC RDI, it can be built in units of 8 users.
- **One Full Rack** accommodates **192 users**.
- Additional expansion can also be added immediately and easily.

NUC PC Specifications

CPU : Intel i5 , i7 , i9 8th generation or higher

Memory : 8GB or higher

GPU : Intel GPU

SSD : 128 GB or higher





















Blade Server Chassis



NUC RDI

04 Comparison of VDI and RDI Methods

RDI accepts the compatibility of existing local PC by using actual H/W individually. Therefore, there is no compatibility problems with existing security programs.

Category	Key Features	VDI	RDI
SW Compatibility	Various Security Programs		
Operations & Management	Resource Management / Dynamic allocation / Recovery		
	Operation / Management Ease and Convenience		
Security Features	Authentication / Authorization / Certification Encryption		
	OS Image Backup / Recovery		
	Blocking the spread of hacking and virus infections		
User friendly features	Mobile Devices Connectivity		
	A variety of local computer connectivity		
	Physically separated Monitor more than one support function		

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What are the differentiated features of RDI-based Cloudin?

- 01 What is the features of Cloudin?
- 02 Distinct Key feature
- 03 Intellectual Property

01 What is the features of Cloudin?

- 01 K-Tech origination
Extreme Performance – **Zero performance degradation** on concurrent connectivity growth
- 02 Complete **Dual Monitor desktop expansion** , same as typical computer that **VDI does not support**
- 03 **The latest software definition period (SDP) security techniques**
High performance, security reliability
- 04 **Easy** to Design / Build / Expand / Troubleshoot
- 05 Competitive Implementation Cost
Remarkably **lower maintenance costs** compared to VDI solutions
- 06 Comprehensive system monitoring environment (user/system)
- 07 Provide the same smart office environment , identical as your office
(Office, Working from Home , Working remotely, Call Center, etc
- 08 Connectivity by n-screen devices
(MS window , Linux , Android , IOS)



02 Distinct Key feature

Support for the same and complete **Dual Monitor desktop expansion** as a typical computer that **VDI solutions do not support**



03 Intellectual Property

Patent

1. Name of the invention : Mesh-shaped desktop platform device using server blades
Registration number : No. 10-2301393

Hardware and related technologies used in Cloudin

1. Blade Server / General Server / General Desktop PC
Applying Hosted Desktop Infrastructure (HDI) technology
2. Self-developed technology for high-definition video streaming and remote control
 - Low bandwidth (2-4 Mbps), low latency 50ms or less [local 20ms or less] (self-test results)
3. Have self-developed technology for multi-monitor separation control
4. Next Generation Software Defined Perimeter (SDP) Application
 - Apply user-multiple authentication methods
 - Server stealth capabilities
 - End to End Bidirectional TLS v2.0 Tunneling
 - User client software self-integrity (fake file) verification capability



4

What is your choice?

In today's world,
there is a constantly increasing need for IT infrastructure that can do business
in the same work environment, regardless of location and time.
The choice of "Real DaaS No. 1 Solution Cloudin" is a smart decision
to build a smart work environment in a timely and
eliminate operational management complexity.

Thank you



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