Transform Connect Inform Protect

# Cloud client-computing

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# Compute continues to change

**3 Billion**
people worldwide now use the Internet , and many access social media

**73%**
of workloads customers expect to virtualize by 2014

**350 Million**
employees will use smartphones by 2016. 250M employees now bring their own device to work.

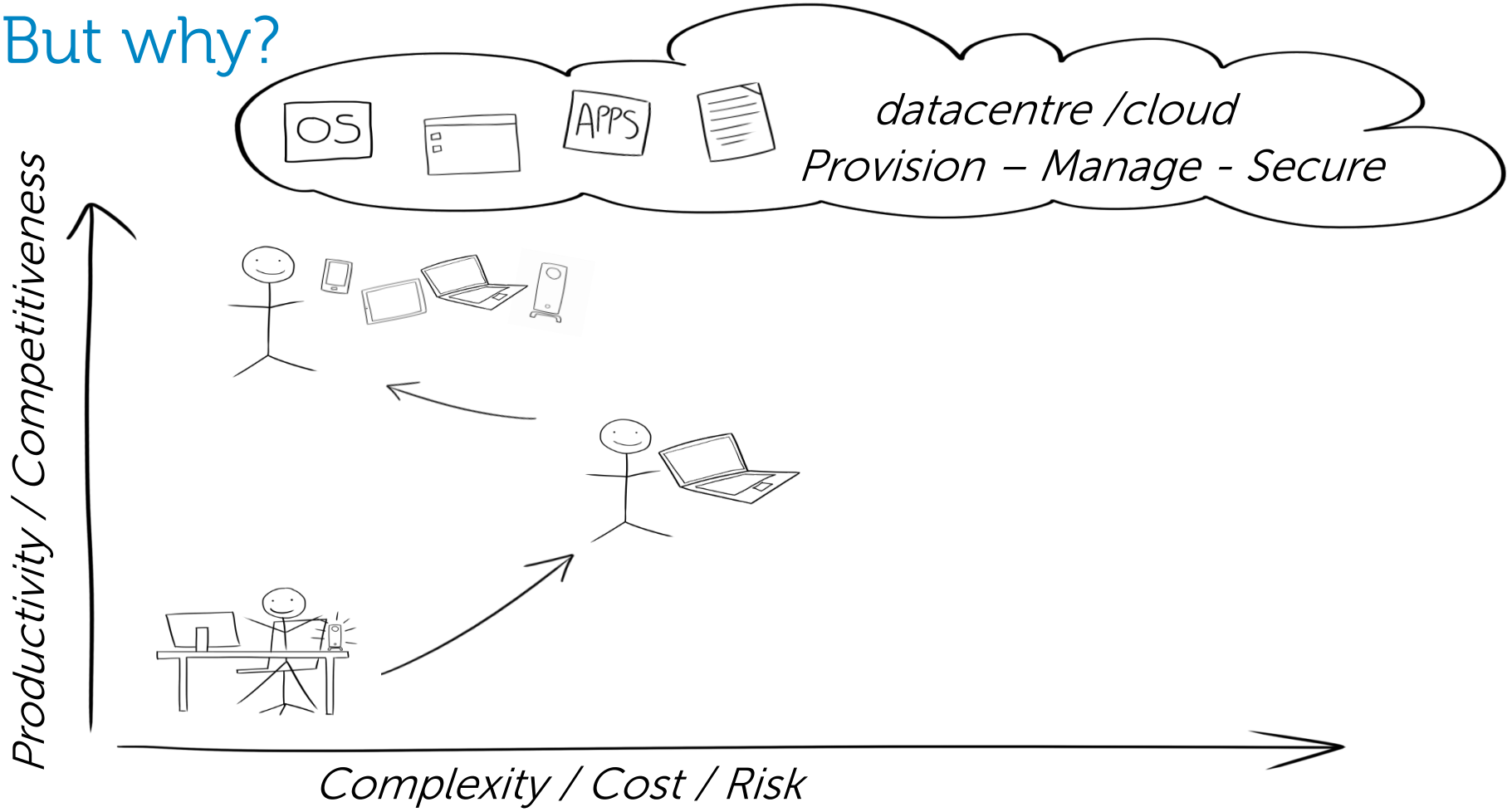
**>50%**
of mid-market companies are using cloud models in their business (SaaS).

**58 Billion**
mobile application will be downloaded by 2015

**2.5 Quintillion**
bytes of data being created every day. How will you manage that to your benefit?

# What is Dell Cloud Client Computing (CCC)?

# But why?


OS
APPS
datacentre /cloud
Provision – Manage - Secure
Productivity / Competitiveness
Complexity / Cost / Risk

# Managing desktops is increasingly challenging

How do you…

- "…increase endpoint and data security?"
- "…reduce the time and cost of managing user desktops?"
- "…scale desktops while controlling opex?"
- "…implement a BYOD program?"
- "…reduce your desktop energy footprint?"
- "…deliver a desktop equivalent virtual experience to your most demanding users?"
- "…secure your remote and mobile users?"

# What can desktop virtualization do for **you**?

## Centralizing desktops in the data center

**Empower the workforce**
Enable BYOD, improve user experience and manage any device

**Optimize IT resources**
Reduce IT resources, scale and speed deployments

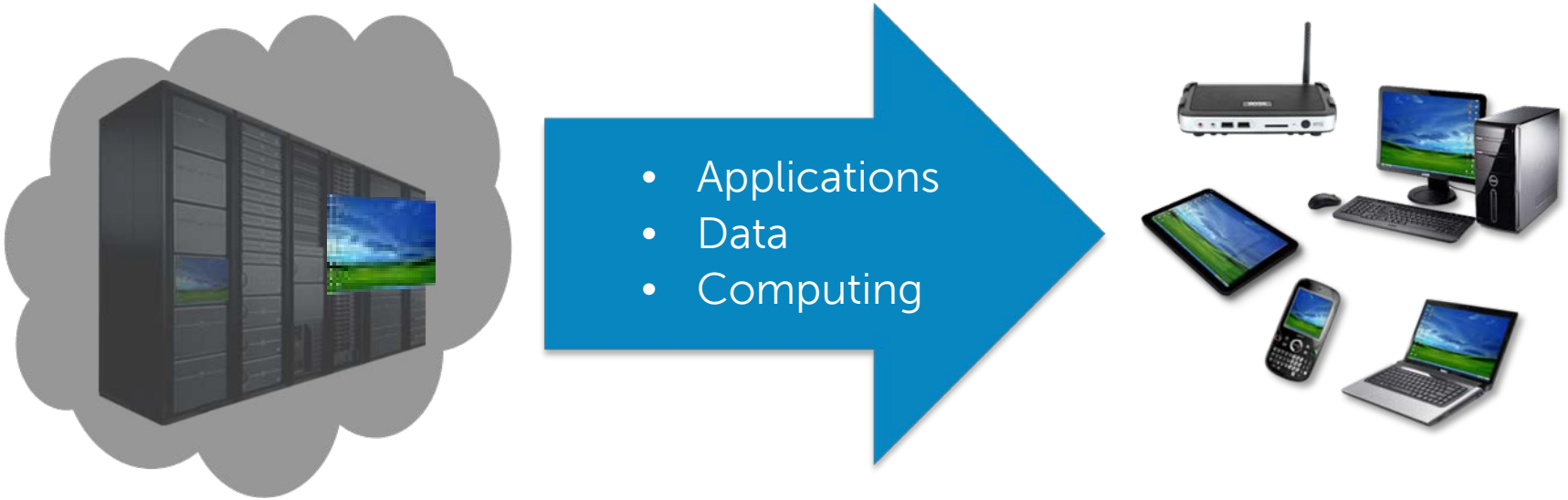
**Improve security**
Control data, apply policies, comply with regulations and monitor risk

**Manage costs**
Monitor and optimize total cost of ownership

# Desktop virtualization: What is it?

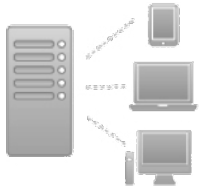
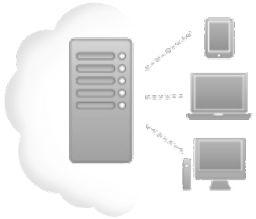
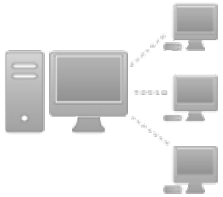
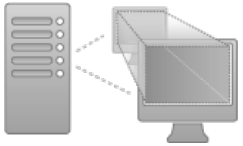
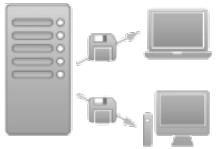
## Run desktops from a centralized location in the datacenter or cloud

Connect any user to any app on any device



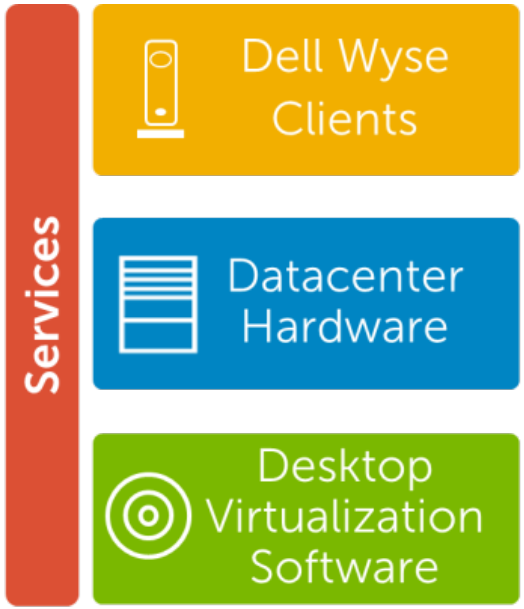

Optimize desktop management, security and resources by centralizing data, applications and computing in a single location

# Desktop virtualization delivery models

| | App Presentation | OS Presentation | Shared | VDI | Cloud PC |
|---|---|---|---|---|---|
| |  |  |  |  |  |
| **Benefits** | User density, low TCO | User density, TCO | Low TCO, PC as a Server, easy install | Application compatibility & OS flexibility | PC experience, central control |
| **Suggested User Types** | Basic User<br>Call Centers | Basic & Standard Users<br>Manufacturing, retail | Basic User<br>K-12 classrooms | Standard & Premium Users<br>General Office | Standard & Premium Users<br>Training & Classrooms |
| **Partners/ software** | Citrix XenApp<br>Microsoft RDSH<br>Dell vWorkspace | Citrix XenApp<br>Microsoft RDSH<br>Dell vWorkspace | Microsoft Windows Multipoint Server | Citrix XenDesktop, VIAB<br>Microsoft RDS<br>VMware Horizon View<br>Dell vWorkspace | Dell Wyse WSM |

# Dell cloud client-computing offers you new options to build your own cloud

A combination of technologies and services that enable and optimize…




…your choice of cloud / desktop virtualization models

| | |
|---|---|
| VDI | Server, desktop, and application streaming |
| Shared, remote desktop session host | Workspace-as-a-Service (WaaS) |

# Wyse Datacenter infrastructure - scales with your needs

Your choice of datacenter hardware with...

virtual workstations | 10 seat | 500 seat | 50,000 seat

**34%**
Decrease in power consumption[1]

**88%**
Less tools to provision desktops[3]

**99%**
Fewer steps than manual[4]

...your choice of pre-tested software options

- Citrix
- Microsoft
- VMware
- Wyse vWorkspace or WSM

**Only Dell has spent over 100,000 engineering hours building and testing 16 partner-verified reference architectures to ensure your success across seat counts, software strategy and vertical market implementation**

# Wyse clients and software - reduce cost, optimize benefits

Dell offers the most extensive selection of secure, easy-to-manage thin and zero clients.

desktop all-in-one mobile ultra-mobile

Most secure thin clients on the planet

Tailored zero clients for Citrix, Microsoft and VMware

**Wyse Device Manager**

**Wyse vWorkspace**

**Wyse Cloud Client Manager**

**Wyse PC Extender**

...and more

More virtualization, management, user-experience and PC-as-thin-client software

**Only Dell has over 200 patents awarded for innovation in thin and zero client design, operating system design, management software, and virtualization software**

Wyse Cloud Connect

Mobile thin clients

Wyse 3290

Wyse 5000 series AIO

Wyse 7000 series quad-display thin client

# Demonstration Vworkspace, Zero Client, BYOD

# GPU virtualization

# Alternative for workstations in datacenter

**1:1**

Computing Node

Dedicated racked workstation

**GPU Pass-Through**

Computing Node

Dedicated graphics card per user

**Virtualized graphics**

Computing Node(s)

Virtualized graphics card

# Nvidia GRID-Card

**Nvidia GRID K1**

4 Kepler GPUs
16Gb Graphics memory
782 CUDA Cores
150W
OpenGL 4.x, DirectX11


**Nvidia GRID K2**

2 High End Kepler GPUs
8Gb Graphics memory
3072 CUDA cores
225W
OpenGL 4.x, DirectX11

# Virtulized workstations - Vmware

vDGA – Dedicated graphics

Horizon View

ESX/vSphere (VMware)

vSGA – Shared graphics

Horizon View

ESX/vSphere (Vmware)

# Centralized Workstations - Citrix

## GPU Pass Through

XenDesktop
with HDX 3D Pro

XenServer (Citrix) or
ESX/vSphere (VMware)

## vGPU

XenDesktop
with HDX 3D Pro

XenServer (Citrix)