

# The Future of Workplaces

**A Journey from the Presence into an Exciting Future**

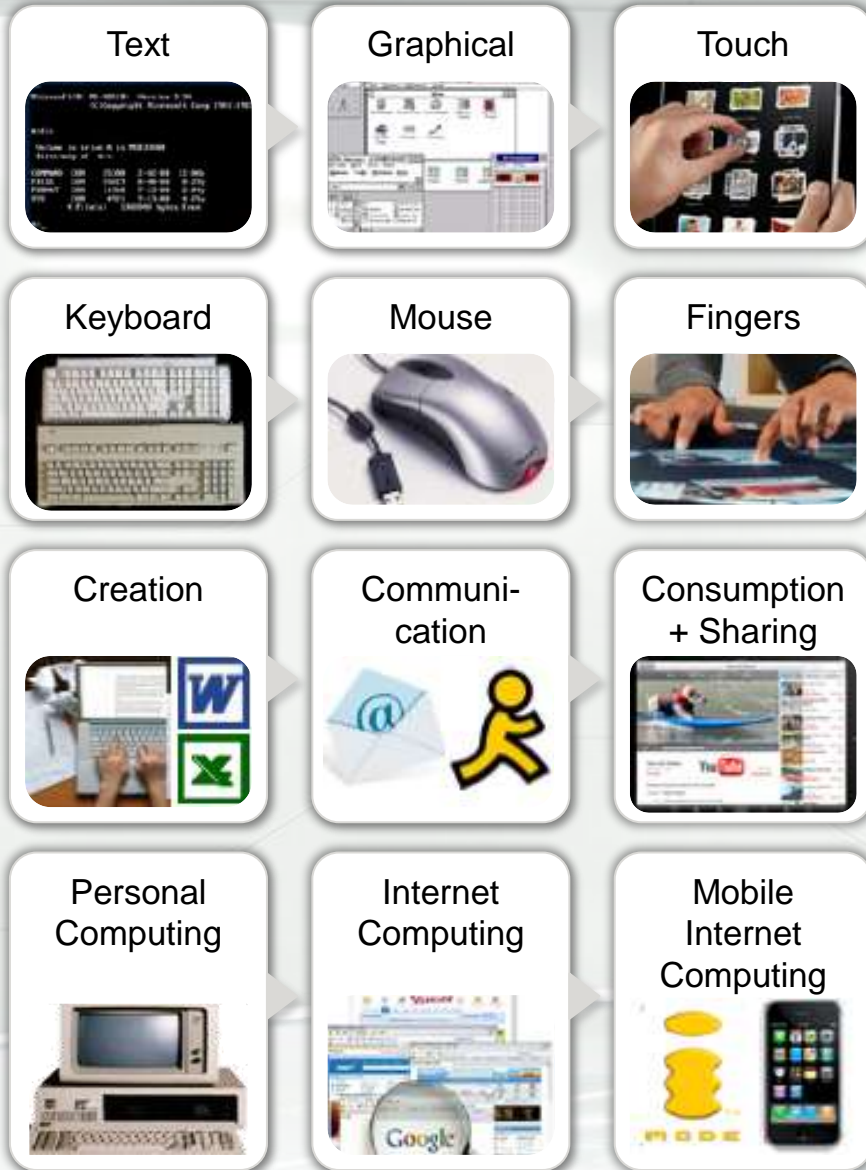
## Workplaces in a changing process

- Demand in human resources in terms of creativity, flexibility and productivity will reach new dimension
- Operational expenses are more than ever under pressure
- Environmental and social aspects become more and more standard



In the next 5 – 10 years, working environment will change significantly

# How we change ...





# Technology - the Old Way



# Technology – the New Way



Accessible to all



Commoditized

On-demand



Stateless

# Addressing Trends and Business Needs

**On the roadmap**      **1 – 2 years**      **3 – 5 years**

Future Workplaces	Portable Zero Client	Multi-OS PZC		
		Embedded VDI in slates		
	Multi Workplace Computing	Enhanced VDI Experience		
Displays	Wireless Power	USB powered	OLED	3D w/o glasses
	Reduced Power & Weight (-1kg)		Touch interaction	
	0W Display    3D Display	Transparent Display		
Workstations	Mobile WS w/ adaptive Gfx	Enterprise SSD	Tablet/Slate WS	Fuel cell
		Virtualized WS	3D w/o Glasses	
PCs	Zero Noise	EraseDisk	New Platform concepts	
		Even Less Power (-90% since 2005)		Enhanced connectivity
Mobiles	Windows slate For Business	Android slate for Business	OLED Display	
	Intuitive User Interface		Wireless Charging	
	0W Adapter	Wireless Port Rep	Energy harvesting	3D w/o Glasses
All Products	Less Power	Smaller devices	Cloud-based enhancements	
	Improved and New UI	100% Solid-state		

**Innovation**

**Reliability**

**Green**

**Human-Centric**



## Fujitsu LIFEBOOK P771

With world's first Modular Bay Projector and Anytime USB Charge



## 0-Watt AC Adapter

Intelligent charging, adapter cuts off power supply when notebook is in off-mode



## Fujitsu Ultrabooks™

A completely new form factor – ultra-slim, lightweight and stylish notebooks – to be launched in summer 2012



## Erase Disk Functionality

Supported by Fujitsu ESPRIMO E/P900, E/P/C700 and CELSIUS workstations. Delete HDDs w/o any chance of data misuse



## FastOn enabled ESPRIMO PCs

Supported by Fujitsu ESPRIMO E/P900 starts up in 13 seconds



## Fujitsu ESPRIMO Q510

Fully featured mini PC with integrated power supply



## Cold-plug access

Supported by CELSIUS R920, M720 and W520 for easy and rapid changes of hard disk drives without opening the side door



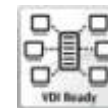
## Fujitsu 3D-Display

23-inch display with 3D technology



## Fujitsu's STYLISTIC M532

Work and enjoy with confidence – Secure data exchange and easy integration into VDI



## Reshape the workplace with ...

### LIFEBOOK Notebooks

- German precision combined with Japanese quality
- 30 years of innovation and of IT experience
- Eco friendly, reducing energy with 0-Watt function
- Real mobile working supported by modular bay concept
  - Up to 18hrs battery life
  - Patented bay projector
- New form factors emerge, upcoming slim and responsive **Ultrabooks™**



Fujitsu's mobile devices optimize working productivity – in the office or at home

## Mobile productivity gains by

### Fujitsu STYLISTIC Tablet PCs

- STYLISTIC Q550
  - Seamless integration and security with existing IT infrastructure thanks to Windows7
  - Touch and active pen input
- STYLISTIC M532 media tablet for business and private use based on Android 4.0
  - Answers the growing trend of "Bring Your Own Device"
  - Preinstalled apps for easy and secure integration into VDI





# The business world is changing

- Digital world removes barriers of physical world
  - New opportunities
- Focus on workforce productivity
- Ever increasing mobility
- Smartphone explosion
- Digital natives enter working life
- Employee-owned devices and apps beyond control of IT
- Social media
- Flexible working models
- War for talents

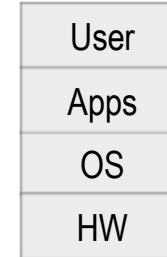


***What does this mean for your IT workplaces?***

# Your workplace – as it used to be

## ■ All tied to device

- One-time decision for device
- OS and apps installed locally
- User personality statically on device
- Tight coupling of components



## ■ Impact

- Strong interdependency of components
- Lots of unique (monolithic) configurations
- Huge lifecycle management efforts
- Many incidents and support calls
- Long recovery times after failure
- Security risks (data loss and theft)
- Difficult to meet compliance demands
- Limited flexibility
- High costs

*It's all about the device !  
No device – No data, no work.*



***How to overcome the limitations of traditional workplace computing?***

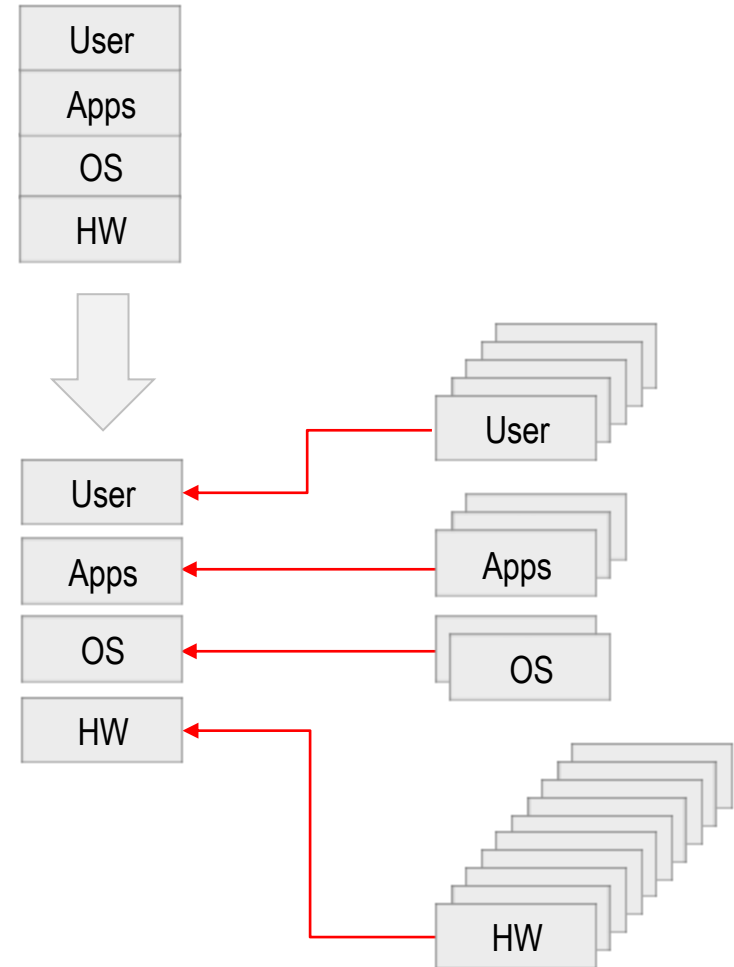
# Virtualization of the workplace

## ■ Concept

- Break tight coupling
- Independency of HW, OS, apps, user
- Independent lifecycles
- Component model
- Dynamic workplace assembly on demand

## ■ Benefits

- Longer lifetime of components
- Reduce complexity
- Simplify management on component level
- Increase flexibility and speed (fast reaction on changing demands)
- Improve service quality
- Reduce costs



***No longer an alternative: The only architecture deployed in the future***

# Rethink your workplace architecture

## ■ Overcome the limitations of traditional PC architectures

### Lifecycle dependency

User

Apps

OS

HW



Break the tight coupling

### Independent lifecycles

User

Apps

OS

HW





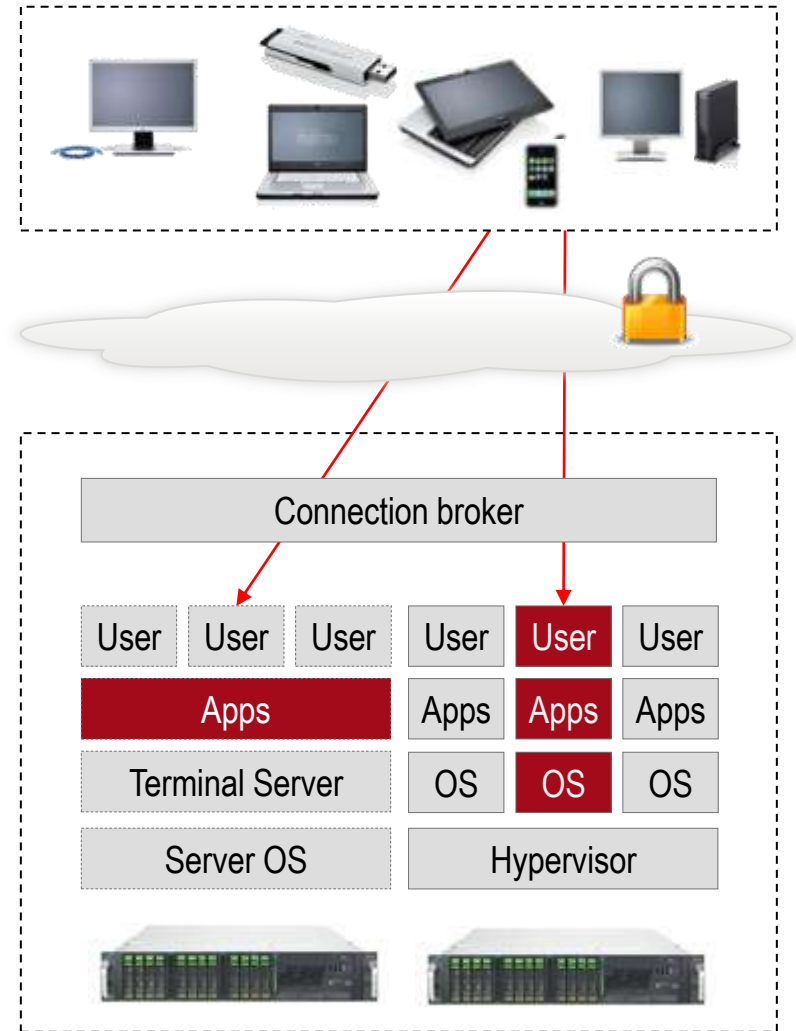
# Moving from front-end to back-end

## ■ Concept

- Apps or data or entire workplaces in DC
- Front-end device for access only
- (Thin) endpoint HW with access SW or browser
- Workplace turns into workspace

## ■ Benefit

- Flexible access from any device
- Simplified management
- High availability / disaster recovery
- Minimized security risks
- Backup by user becomes obsolete
- Full compliance, audit-proof
- Reduced energy consumption and noise (depending on access device)
- Cost reduction



***Self-management – an expensive luxury?***

# Make or buy?

## ■ Virtualization and centralization follow consolidation and standardization

- No more service focus on devices
- Simplified services
- Some services can be dropped
- Security services in different shape

## ■ Orchestration tools

- Automate and accelerate service tasks

## ■ Focus on strategic projects

- IT becomes commodity
- Lack of resources and skills

## ■ Industrialized services

- Service provider
- SLA-based
- Scale effects
- Price per seat (transparency)
- Customer keeps full control



IT as utility



Industrialization



Automation



Virtualization



Consolidation  
Standardization

# Cloud computing relieves business pain

## ■ Apps or workspaces “as a service”

- Standardized service delivery
- Virtualization as enabler
- All data is immediately saved in cloud
- Pay per use



## ■ Benefits

- Shift CAPEX to OPEX
- Cost reduction and transparency
- High flexibility (up- and down scaling)
- Fast introduction of new services
- No risk (Low barrier to entry, easy to exit)
- Always latest technology
- High service quality
- No invest in infrastructure and skills



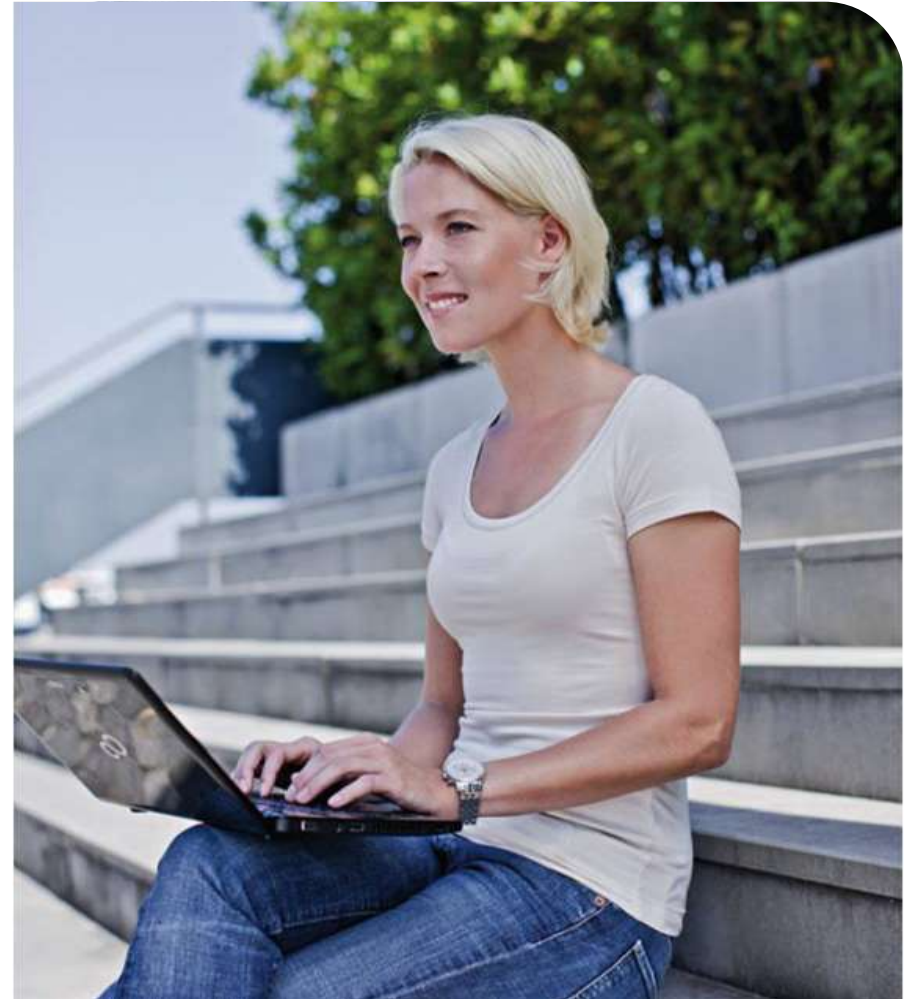
## ■ Cloud types

- Private cloud (on-premise, off-premise)
- Public and (secure) trusted cloud (shared infrastructure)
- Hybrid cloud



# Ubiquitous high-speed connectivity ...

- Network more important than ever
  - Part of the “workplace system”
  - Always on
  - Anywhere, anytime computing
- Exploding bandwidth
  - WiFi and mobile broadband
  - 4G services WiMax and LTE
- Economical flat rates
- LTE simplifies roaming
  - Global phenomenon
- Offline work becomes an exception
  - Supported by local virtual environments
  - Encrypted and isolated
  - Remotely erase data after loss or theft of device

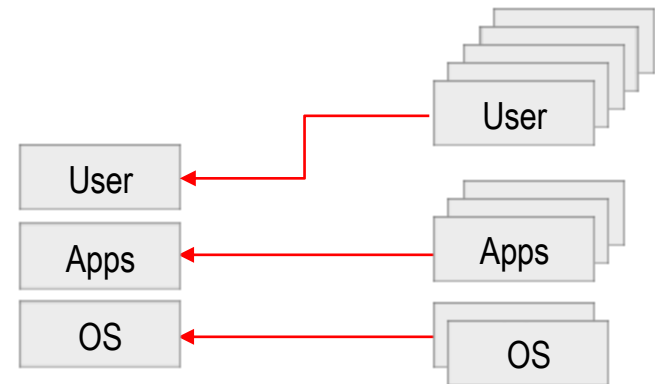


*... makes cloud computing reality*



# The workspace is dynamic

- Personal cloud for each user
  - Set of online services and personal devices
  - PC – one acronym for 2 different worlds
- Self-service
- Created at logon
- Ceases to exist after logoff
- Context-aware filters
  - Control permissions
  - Place, device, time of access
- Dynamic presentation of workspace content
  - Acc to corporate security policies



*What's the device requirement?*

# Devices will not matter for IT

- No more device-based locked down client
- Any device to access workspace
- Proliferation of devices and OS
  - More and more mobile devices
  - New device types
  - Focus on design and ease of use
  - Diverse devices for specific use cases
  - 3-4 devices per user (smartphone, tablet, device with full keyboard)
  - Reflects lifestyle and self-expression
  - Makes management difficult
- Decreasing interest of IT in devices

- CIO focus
  - Manage services instead of devices
  - Governance of app and data, services and providers
  - Control access to enterprise IT
  - Drive business instead of just looking after a stable infrastructure



***Who will select, buy and manage end user devices?***

# Device selection by end users

- Digital natives enter working life
  - Latest technology for personal life
  - Same technology desired at work
- Work / life borders blur
  - Work can happen anywhere
  - Mix of work and person-related tasks
  - Same apps for life and work  
(Social media for more customer information, or even instead of e-mail)
- Consumer technology migrates into enterprise
  - Device, OS platform, apps
- Empowered employees
  - Resourceful
  - Improve work processes, productivity
  - Drive innovation



***Consumerization of IT***

# BYOD (Bring Your Own Device)

- Employee-owned devices replace corporate devices
  - Concurrent business and private use
- Device only for cloud access
  - No corporate data on device
  - Minimized security risks
  - No management efforts
- Aspects to be considered
  - Strategy
  - Security policies
  - Technical prerequisites
  - License implications
  - Support guidelines
  - Stipend program, tax implications
  - Legal aspects
  - Communication



***BYOD requires well-defined policies***



# BYOD – What's in it for whom?

## ■ End user

- Choice (use device that fits needs / work style)
- Ability to work from any location
- Better work / life balance
- Convenience
- Higher flexibility
- Higher user satisfaction



## ■ Business

- Attractive for recruiting and retention
- Reduce HW assets
- Reduce device costs
- Reduce office real estate
- More (free) work on weekends / after hours
- Higher productivity
- Rapid response
- More business opportunities
- Drive innovation
- Creative company image
- Competitive advantage
- Fewer lost devices (better user care)

## ■ IT

- Relieved from lifecycle management for non-strategic assets
- No need to deal with proliferation of devices
- Less end user training
- Less support calls (user knows his device)
- No complaint about age and poor performance
- Cost reduction
- Focus on strategic projects

***BYOD will be seen as a win-win situation for all***

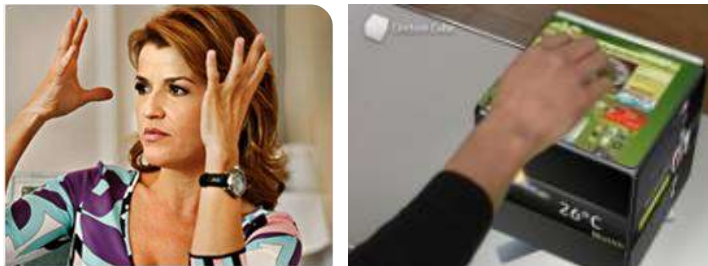
## ■ Additional form factors

- Ultra-small thin clients
- Wearable (wrist-watch) including all PC / smartphone functions



## ■ Interaction and user interface

- Motion and gesture control, head or eye movement
- Voice recognition (integrated translation)
- Context-aware sensors
- Human interface computing – enabler for augmented reality



## ■ Fast access, immediate availability

- Flash memory (no downtime)
- Keyless entry (RFID chip, motion sensor)

## ■ Less cables

- Energy induction on demand
- SUPA (Smart Universal Power Antenna)
- Power over Ethernet



## ■ Display technologies

- Ultra-slim, ultra-light screens
- 3D (without glasses)
- Resizable (from wrist watch to tablet)
- Flexible touch-screens without fingerprint
- Tactile (gel) displays
- Flexible screen with virtual papers

# Will future workplaces be green?

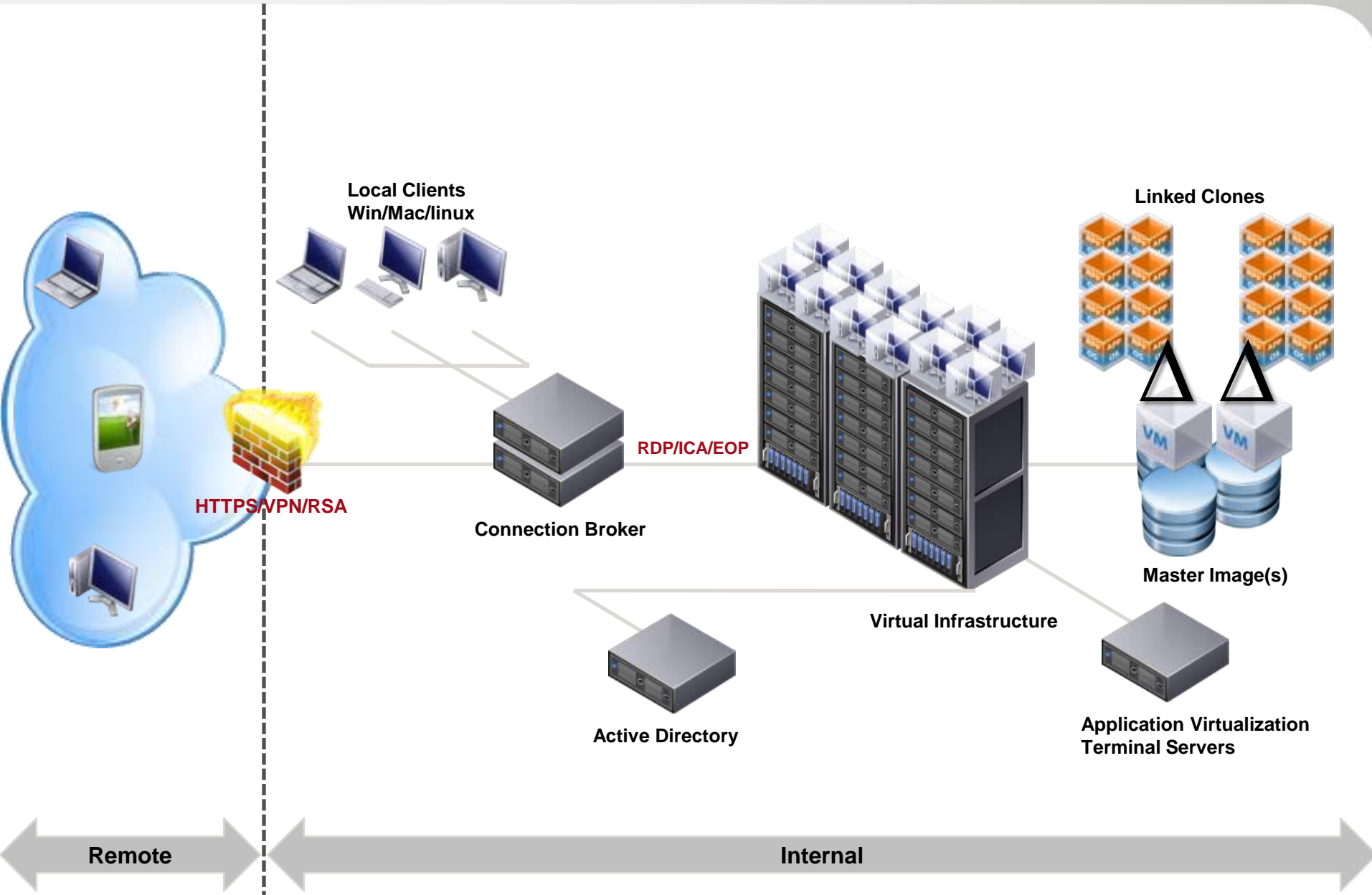
- **Reduced energy consumption**
  - New technologies (e.g. SSD)
  - Power management
  - 0-Watt in sleep mode
  - Minimize conversion loss of PSU, 0-Watt PSU (Consume energy you need)
  - Virtual client computing (dynamic workspaces, thin endpoints)
  - Trusted cloud
  - Efficiency aspects in DC facility (concentrate load on min. # servers)
- **Energy rating schemes**
- **Alternative energy concepts**
  - Solar, fuel cell, energy harvesting
- **Material optimized for environment**
  - Reduce hazardous materials
  - Recyclable material, reduce waste



*Energy Efficiency Directive*



# Virtual Client Computing (VCC)



# Workplace delivery options and user types

<i>Task Worker</i>	<i>External User</i>	<i>Knowledge Worker</i>	<i>Power User</i>	<i>Mobile Worker</i>
<i>Desktop</i>	<i>Desktop / Notebook</i>	<i>Desktop</i>	<i>Desktop / Workstation</i>	<i>Notebook</i>
<i>Preferred access devices: Thin clients, ultra thin clients, Zero Clients</i>				<i>Notebook</i>
<i>Hosted Shared Desktop</i>	<i>Hosted Virtual Desktop</i>		<i>Hosted Central Desktop</i>	<i>Local Virtual Desktop</i>
<i>OS image virtualization</i>				
<i>Application virtualization</i>				
<i>User virtualization</i>				





# Who is playing where in the market?

- Local Client Virtualization
- Volume Cloning
- Security Gateway
- WAN acceleration
- Data de-duplication
- Thin Provisioning
- Profile Virtualization
- Application Virtualization
- OS Streaming
- Connection Broker
- Protocol
- Hypervisor

## ■ Proof of Concept

- Demonstration of various virtualization technologies
- Exchange of ideas

## ■ Pre-integrated solutions

- Optimized configuration templates
- Evaluation package

## ■ IT investment decision support

- Estimate and predict ROI
- TCO analysis

## ■ Competence

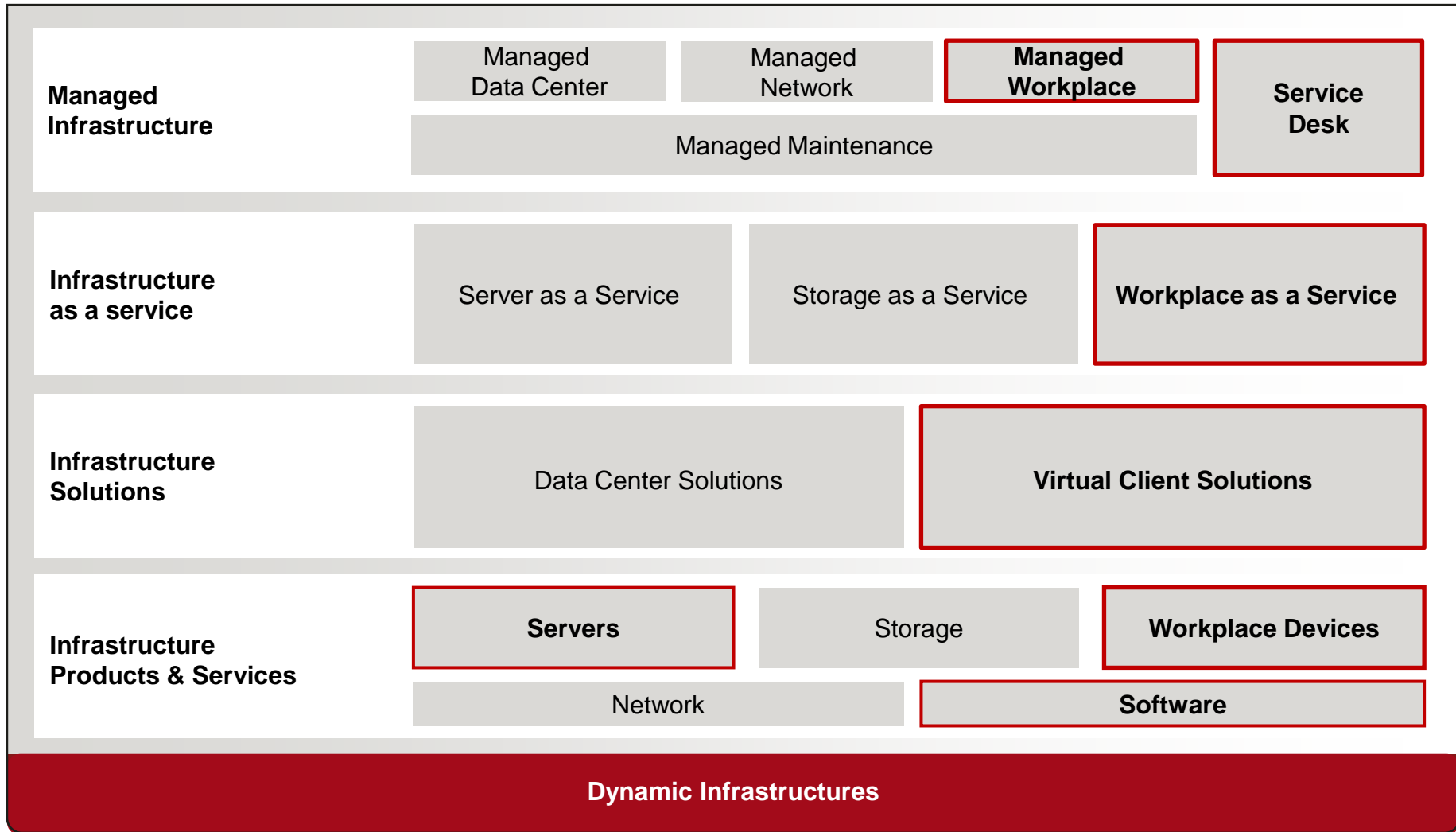
- Through experience
- Local/HQ CC

## ■ Appropriate services

- For all phases of the project lifecycle



# VCC in Fujitsu's Dynamic Infrastructures



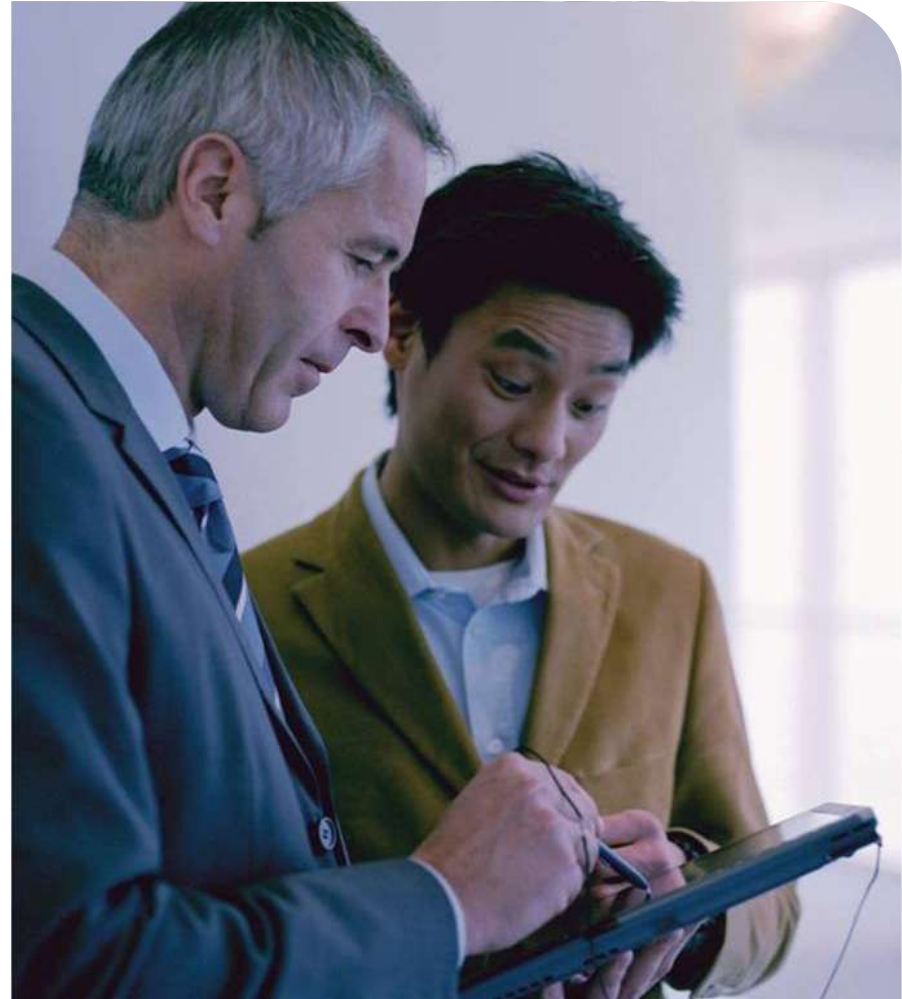
- Workplace assessment
- Virtual client computing
  - All required technologies
  - Software from market-leading partners
  - Proven, certified infrastructure products
  - End-to-end services
  - Financial options
- Devices for work and life
  - Rich clients (mobile and stationary)
  - Thin / ultra-thin / (Portable) Zero Clients
- All sourcing options
  - Managed Workplace
  - Managed Mobile
  - Cloud services



***Fujitsu – Everything from a single source.***


# Summary: Workplace of the future

- Not one answer
  - Depends on business and needs
- But strong trends visible
  - Component model will dominate
  - Everything virtualized
  - From workplace to dynamic workspace
  - Freedom of choice with devices
  - Concurrent private and business usage
  - Types and styles of interaction proliferate
  - Greener than ever before
- Where the corporate workplace comes from, the user won't care
  - Just user experience matters
- Choosing the right partner for the journey is essential



***Fujitsu – Your companion into an exciting future***





FUJITSU

shaping tomorrow with you