

雲端運算願景與實現

馬維英 博士

微軟亞洲研究院 常務副院長

Important Aspects of the Cloud

- Software as a Service (SaaS)
- Platform as a Service (PaaS)
- Infrastructure as a Service (IaaS)
- Information and Knowledge as a Service

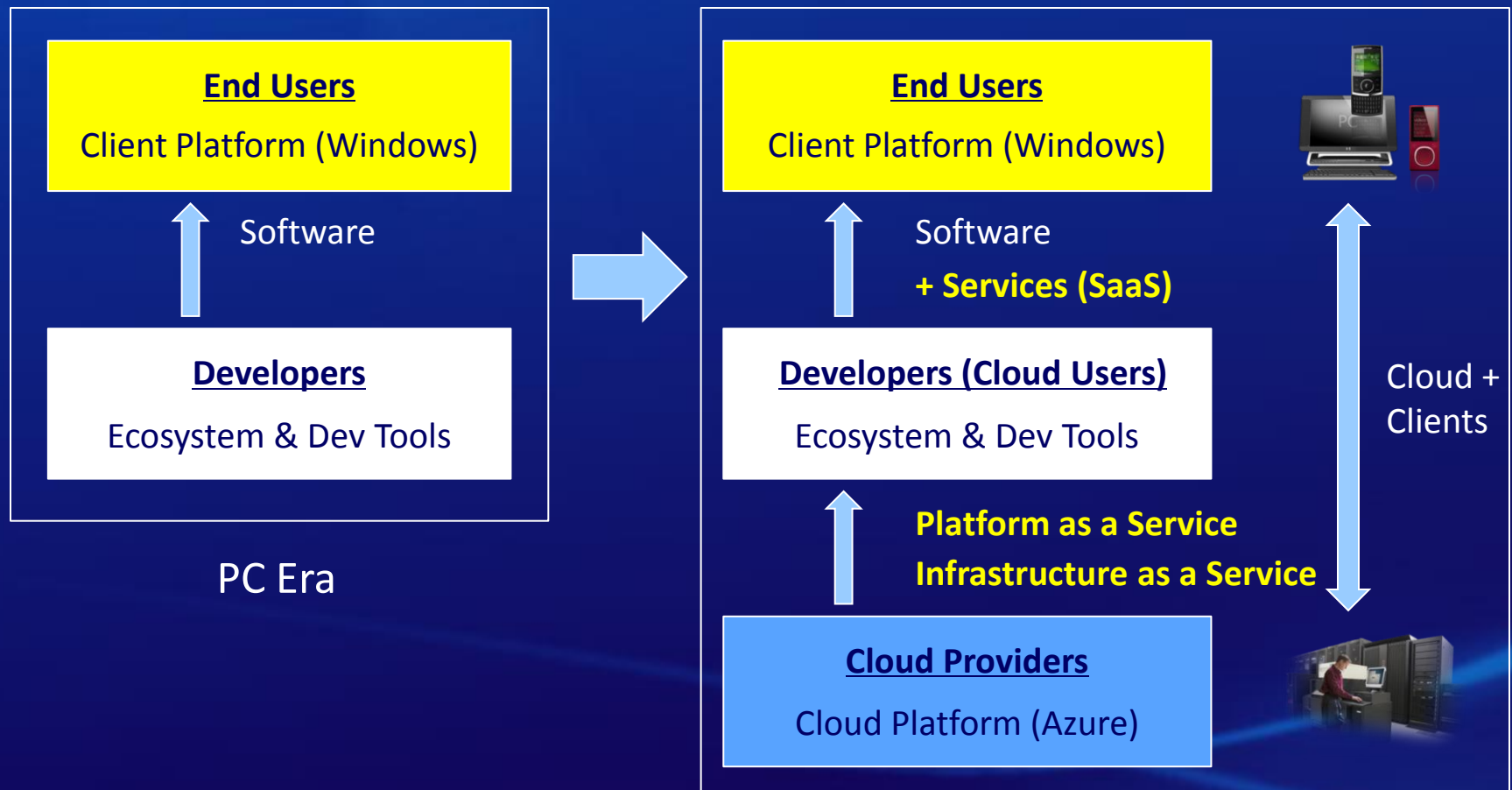


A Paradigm Shift for IT Industry

PC-centric → Web as a Hub

1C → Clients + Cloud (雲 + 端)

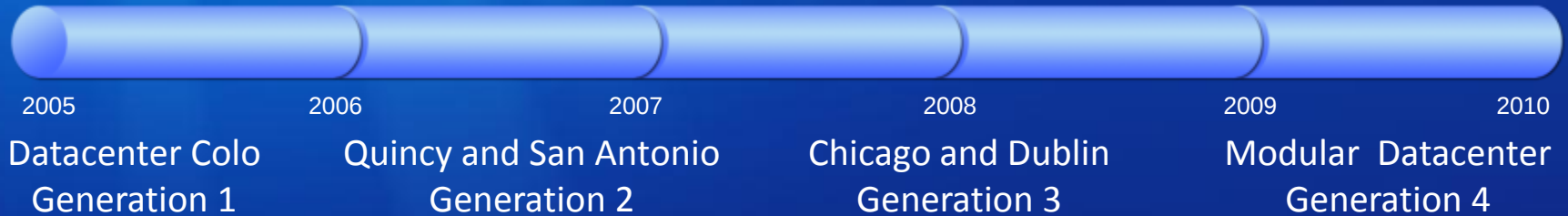
1S → Software + Services (軟體 + 服務)



The Economic Impact of IT, Software, and the Microsoft Ecosystem on the Global Economy

- The global Microsoft ecosystem constitutes
 - 700,000 business partners that generate \$537 billion revenues in 2009
 - Equivalent to 1/3 of the \$1.4 trillion in total global IT spending
- For every \$1 of Microsoft revenue in a local market, partners make \$8.70
 - Powerful contribution of the Microsoft ecosystem to local economies
 - These revenues stay in the local economy, fueling further growth and innovation

The Evolution of MS Datacenter



Improved Efficiency and Cost



Server

Capacity



Rack

*Density
and Deployment*



Containers

*Scalability and
...Sustainability*



IT PAC

*Time to Market
Lower TCO*

Gen 4 Modular Datacenter



Video link: [Generation 4 Modular Data Center](#)

Microsoft's Cloud Platform

Finished Services & Solutions

 Windows Live™

 Microsoft Office Live

Microsoft Exchange Online

 Microsoft Dynamics CRM Online

Microsoft SharePoint Online

Building Block Services

 Live Services

 Microsoft .NET Services

 Microsoft SQL Services

Microsoft SharePoint Services

Microsoft Dynamics CRM Services

Cloud Infrastructure Services



Windows Azure™

Compute

Storage

Management

Global Foundation Services

Hardware

Networking

Deployment

Operations

Dev Tools

 Microsoft Visual Studio 2008

 Windows Server 2008

 Microsoft Visual C++ 2008

 Microsoft Visual Basic 2008

 Microsoft Visual C# 2008

 Microsoft .NET ASP.NET

Microsoft's Cloud

Private Cloud

Options for customers

Public Cloud



Microsoft Online Services

Microsoft SharePoint Services



Windows Azure

SQL Azure

Windows Azure platform
AppFabric



Microsoft System Center

Windows Server

Microsoft | Dynamic Infrastructure
Toolkit for System Center

Microsoft | Dynamic Data Center Toolkit
For Hosters

Cloud Computing Research@MS

- Datacenter Future (Extreme computing group)
- Energy efficient computing - > Green and environmental protection
- Software architecture for parallel, scalable, elastic computing
- New programming languages and development models
- Computation-intensive vs. data-intensive computing
- Offline vs. online (real-time) computation
- New processors, LAN switches, WAM routers, memory hierarchy (include flash memory), hardware acceleration
- Sensing, visualization, and automatic management of datacenters
- “Built in” pay-for-use licensing and billing for utility computing

The Impacts of Cloud Computing

- Level the playing field
 - Computing as utility
 - Everything as a service
 - Small start-up ventures can directly compete with more established Internet companies
- Transform many industries and businesses
 - IT industry
 - Mobile industry
 - The Web and Internet industry
 - Data-driven businesses

Transform the Web & Internet Industry

The cloud platform for developers to build future Internet services

End-User Services

Information and
knowledge as a service

Search
(Killer App)

Information Content

Social networks (SNS)

Productivity Services
(Office Live)

Communication (IM)

Subscription Services

Online Commerce
(C2C, B2C, B2B, etc)

Monetization Platform

Advertising (Buy/Sell/Serve)

Payment/Marketplace

Audience Intelligence

Data/Business Intelligence

Cloud Platforms
(Platform as a Service &
Computing as Utility)

Cloud Application Services

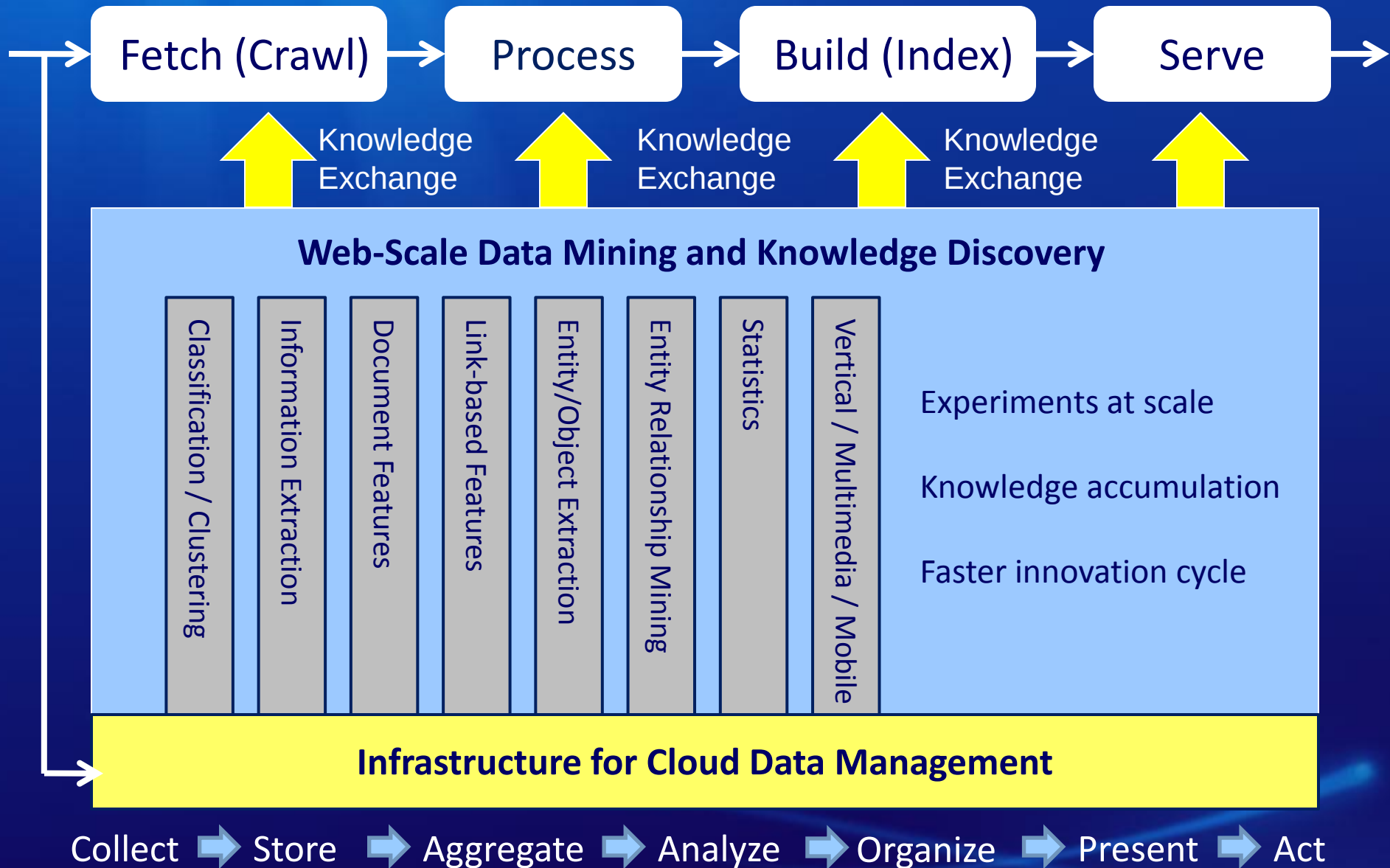
Cloud Infrastructure Services

Cloud Foundation Services

Information/Knowledge as a Service

- Deep understanding of data in the cloud
 - Data -> Information -> Knowledge & Intelligence
 - Queries -> Intent
 - Users -> Audience Intelligence -> Personalized & Targeted
- Knowledge & intelligence in the cloud
 - Infrastructure for Web-scale data mining and knowledge discovery
 - Empower people with knowledge
 - Empower applications and services with intelligence

Cloud Data Mining Infrastructure



Important Trends for Web Search

- Organize all information →
Address user's information need
- Intent
- Knowledge
- Semantic matching & task completion
- Search content → Search apps & services
- The cloud platform and developer ecosystem

Cloud Platform and Developer Ecosystem for Web Search

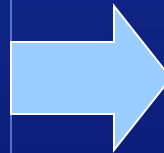
(Platform + Infrastructure + Information/Knowledge)
as a service to developers

- Search Content -> Search Apps
- 1-2 developers can build a micro-vertical app and web service to help with users on a specific task
- Millions of apps are easily discoverable and searchable at apps market place
- Search engine routes intent to task (apps)

The Cloud and Search Engine

- Web Graph

- Links between web pages
- PageRank



- Cloud Graph

- Information cloud
- Social cloud
- Communication cloud
- Entertainment cloud
- Productivity cloud
- Commerce cloud
- Fusion & graph mining



有人的地方就有关系

Web-scale Knowledge Discovery

Entity/Object Search

- Mining implicit social information from web pages
 - Web-scale entity extraction and summarization
 - Mining relationships among people, organizations and locations from Web pages
- Renlifang (人立方) Search : <http://renlifang.msra.cn>
- EntityCube: <http://entitycube.research.microsoft.com/>
- Travel Guide: <http://travel.msra.cn/>

Knowledge about People



Knowledge about Places



Travel Guide 旅游指南

海滨度假





China

舟山市 (浙江省)

特色: 群岛 码头 海鲜 鸭蛋 岛屿 海岛 轮渡 沙滩 海水 渔港

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导游图

进入目的地页面
收藏
查看到: 街道 | 城市 | 区域

去必应搜索:
机票、火车票、酒店

600 km

AVTEQ © 2009 Zenrin
Image courtesy of NASA

Empower Data-driven Businesses

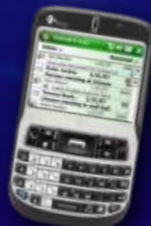
- Search
- Location services: maps, driving directions, traffic, attractions, restaurants, gas stations, weather
- Healthcare: personalized, diagnosis, decision support, monitoring, public health policy/management
- Green causes: air quality, environmental monitoring
- Science and research: physics, astronomy, climate, life sciences, geology
- Social computing
- Commerce: shopping, inventory/supply chain management, advertising
- Security: physical and IT
- Power/water management
- Government services

Cloud + Clients – Life without Wall

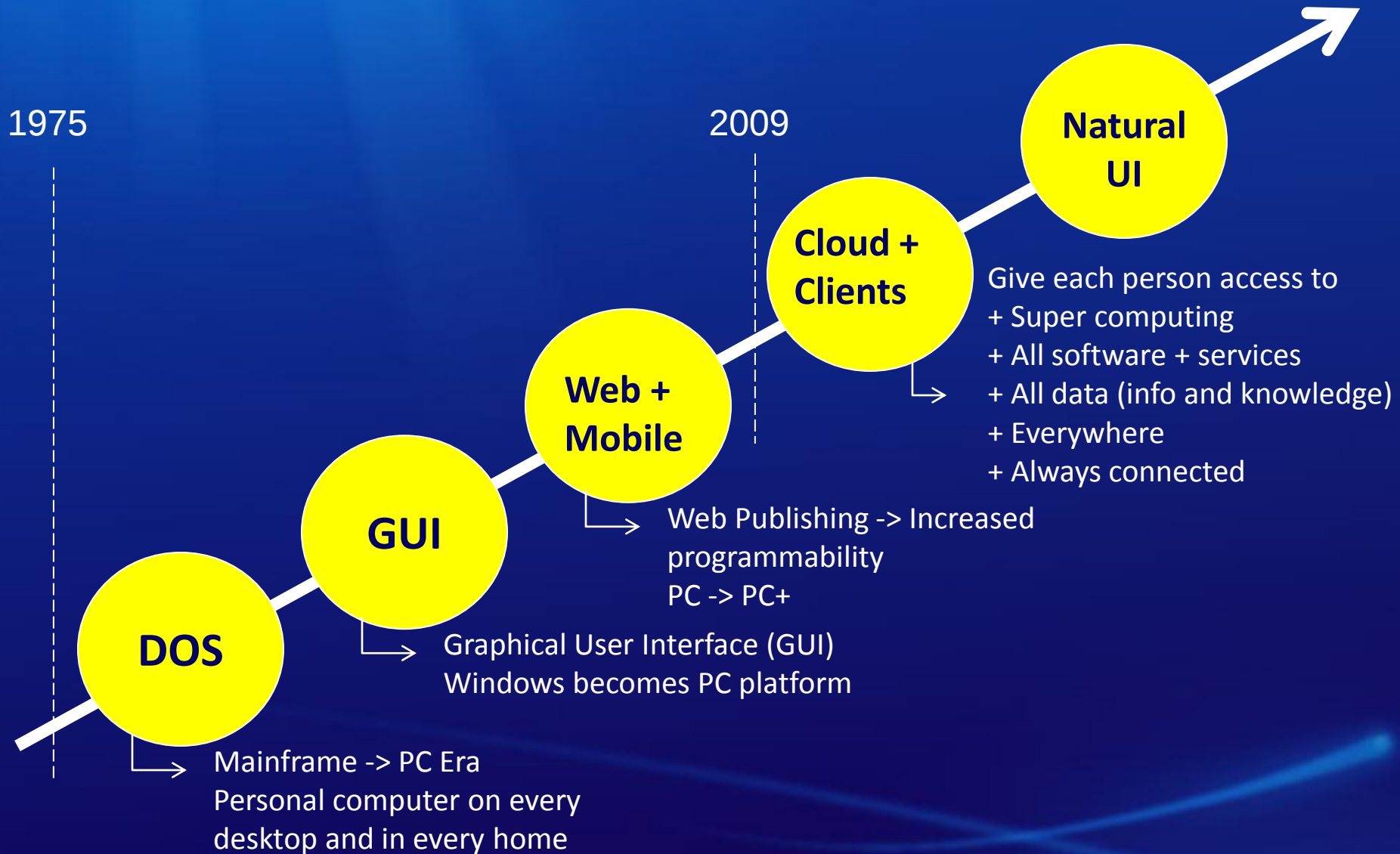
- Connect Devices
- Connect Data
- Connect Apps and Services
- Connect People
- Connect Businesses
- Connect Everything...



Cloud Platform



The Continuous Revolution



Summary

- Five dimensions of the cloud
 1. The cloud creates opportunities and responsibilities
 2. The cloud learns and helps you learn, decide and take action
 3. The cloud enhances your social and professional interactions
 4. The cloud wants smarter devices
 5. The cloud drives server advances that drive the cloud