Microsoft Technical Computing

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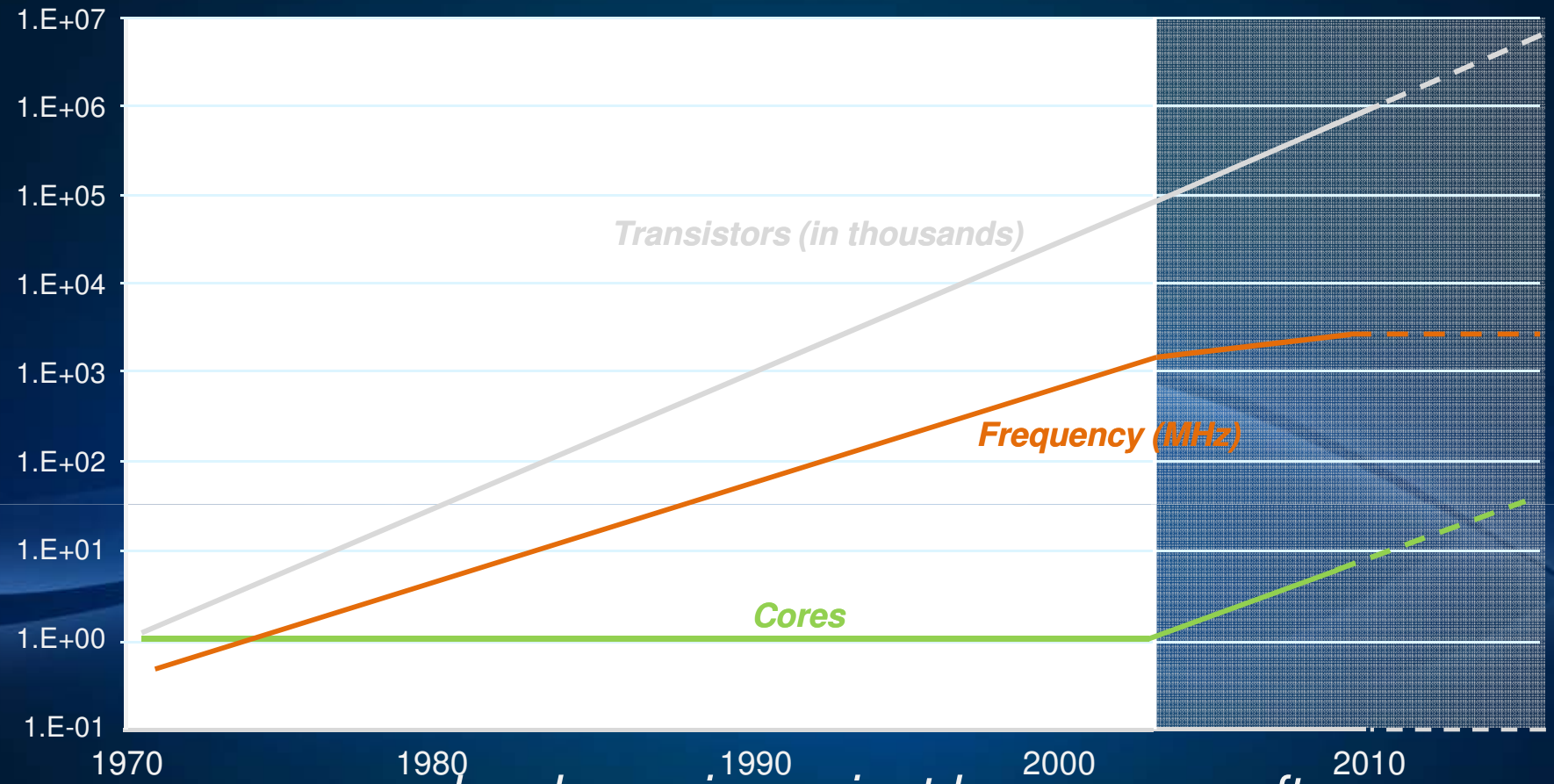
Dr Henrik Steepler, Partner Sales EMEA


1.2×10^{21}
New Bytes of Information in 2010
Source: IDC, as reported in The Economist, Feb 25, 2010
(1'200'000'000'000'000'000'000 bytes)

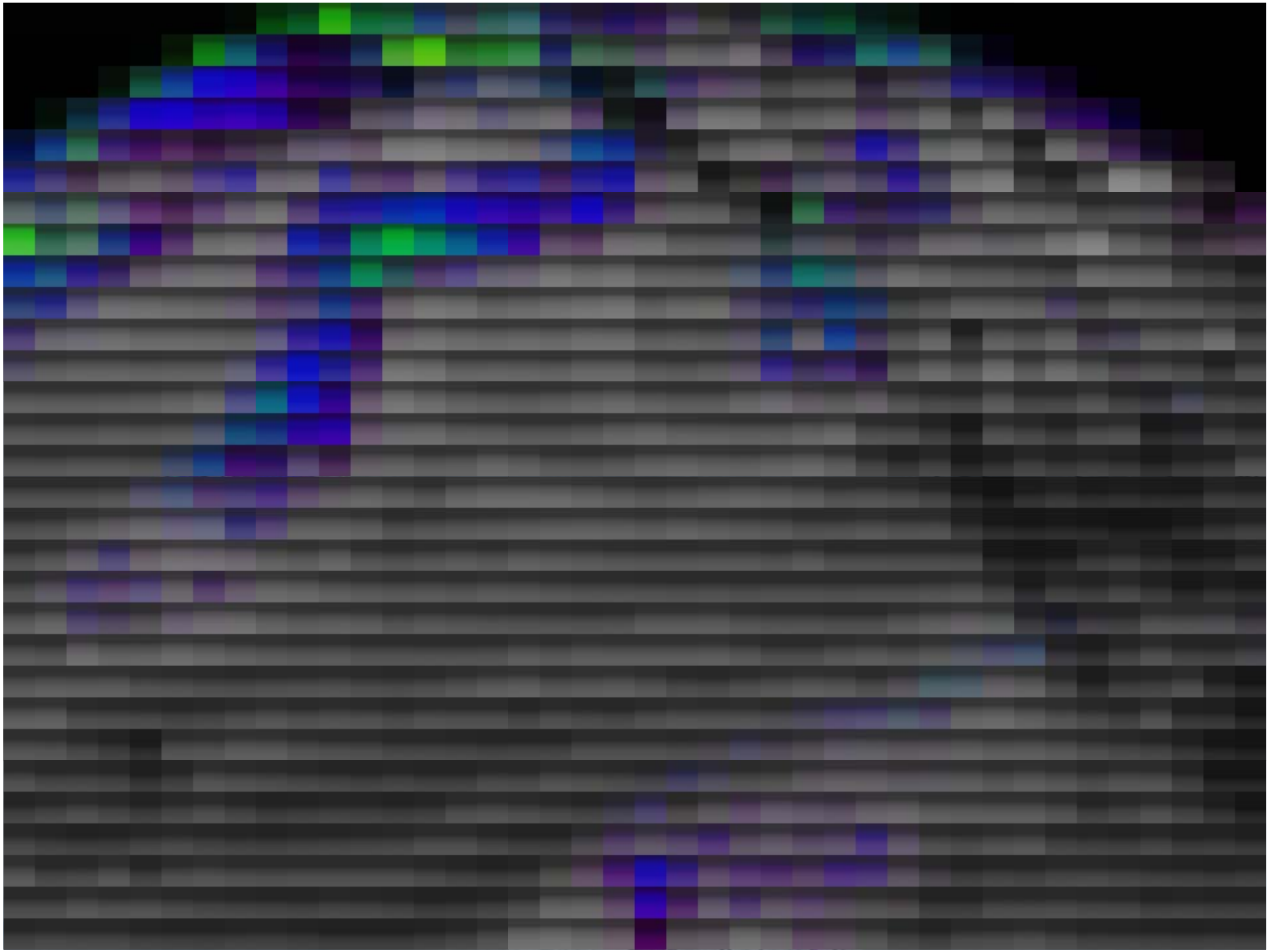

The Economist
Obama the warrior
Misgoverning Argentina
The economic shift from West to East
Genetically modified crops blossom
The right to eat cats and dogs
Economist.com
The data deluge
AND HOW TO HANDLE IT: A 14-PAGE SPECIAL REPORT

Moore's Law...

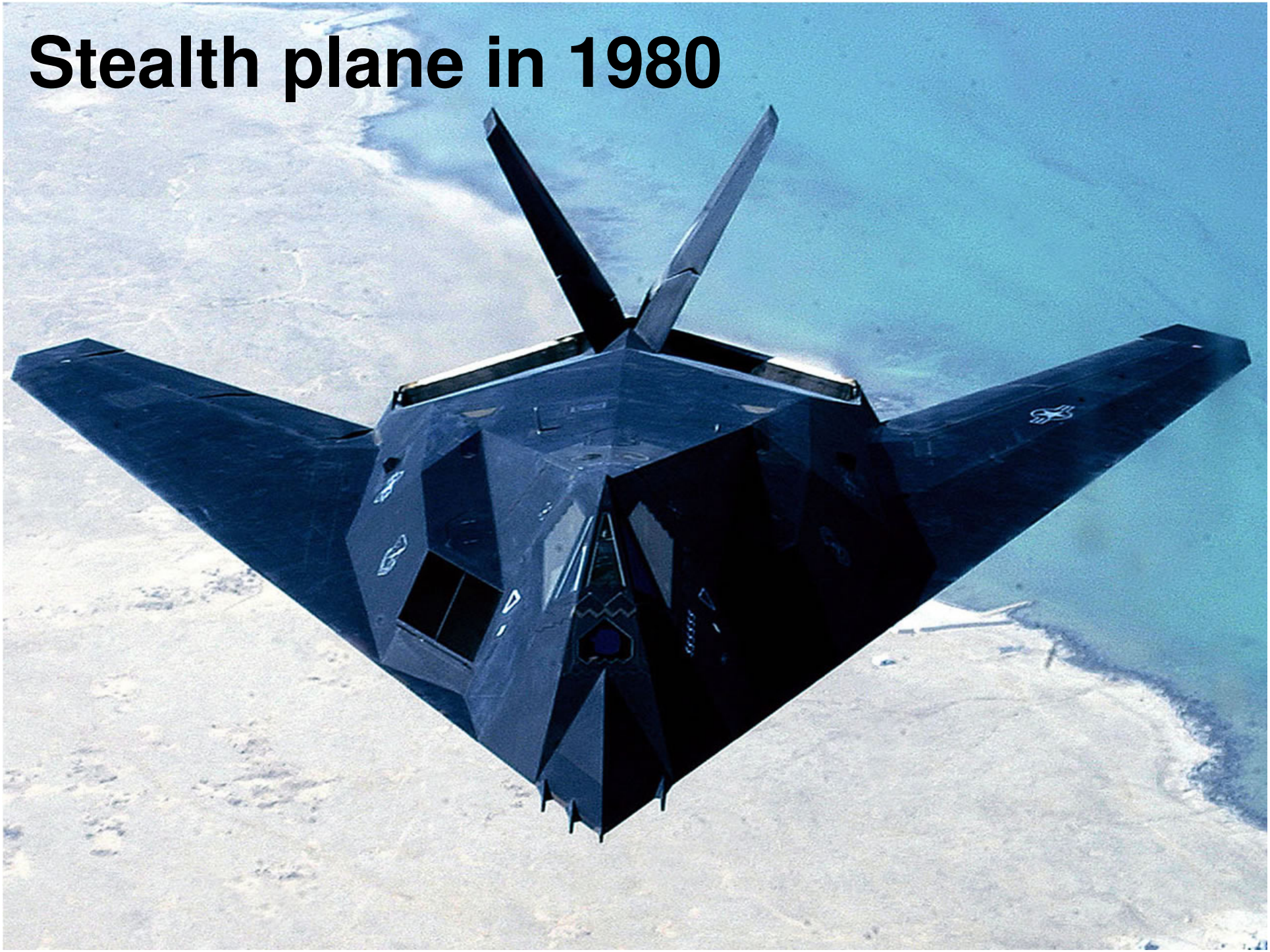


…a hardware issue just became a software problem

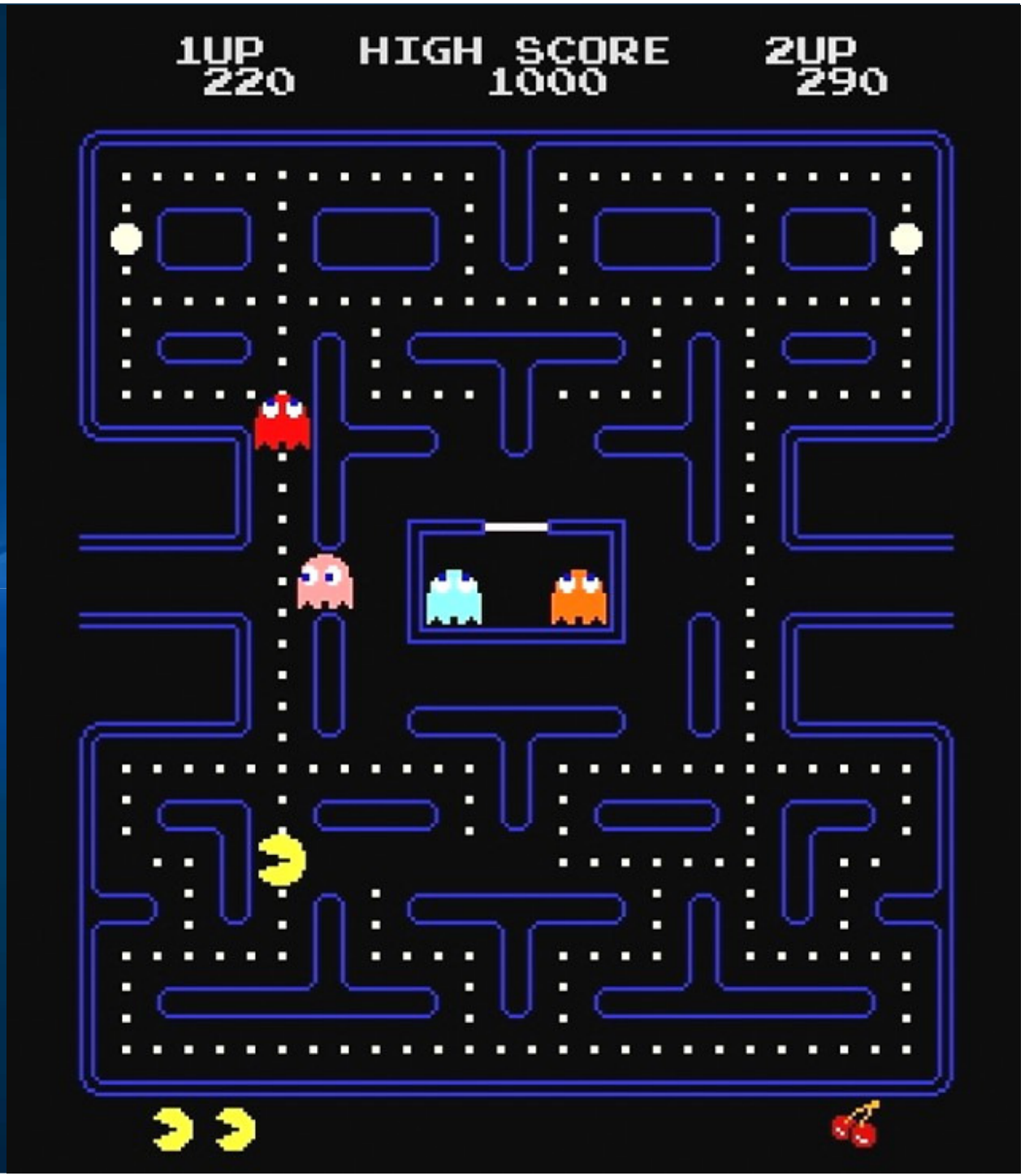
Source: Jack Dongarra, Kunle Olukotun, Lance Hammond, Herb Sutter, Burton Smith, Chris Batten, Krste Asanovic, and Kathy Yelick



Stealth plane in 1980



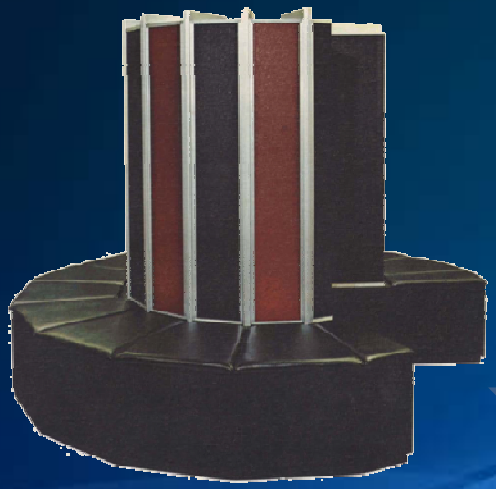
Computers in 1980




Stealth plane
in 2010

Conclusion:
To out-compete is to out-compute

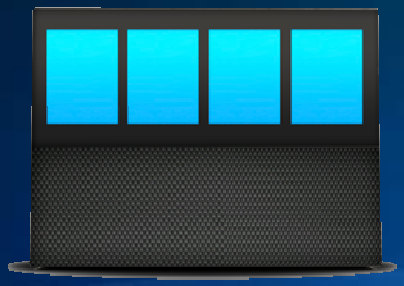
Summary: Problem and Opportunity



Problems requiring big compute and big data are increasingly mainstream, demanding simpler solutions

You are here

A parallel machine on every device means we need simple ways to program them



Client

single node
shared
memory

Cluster

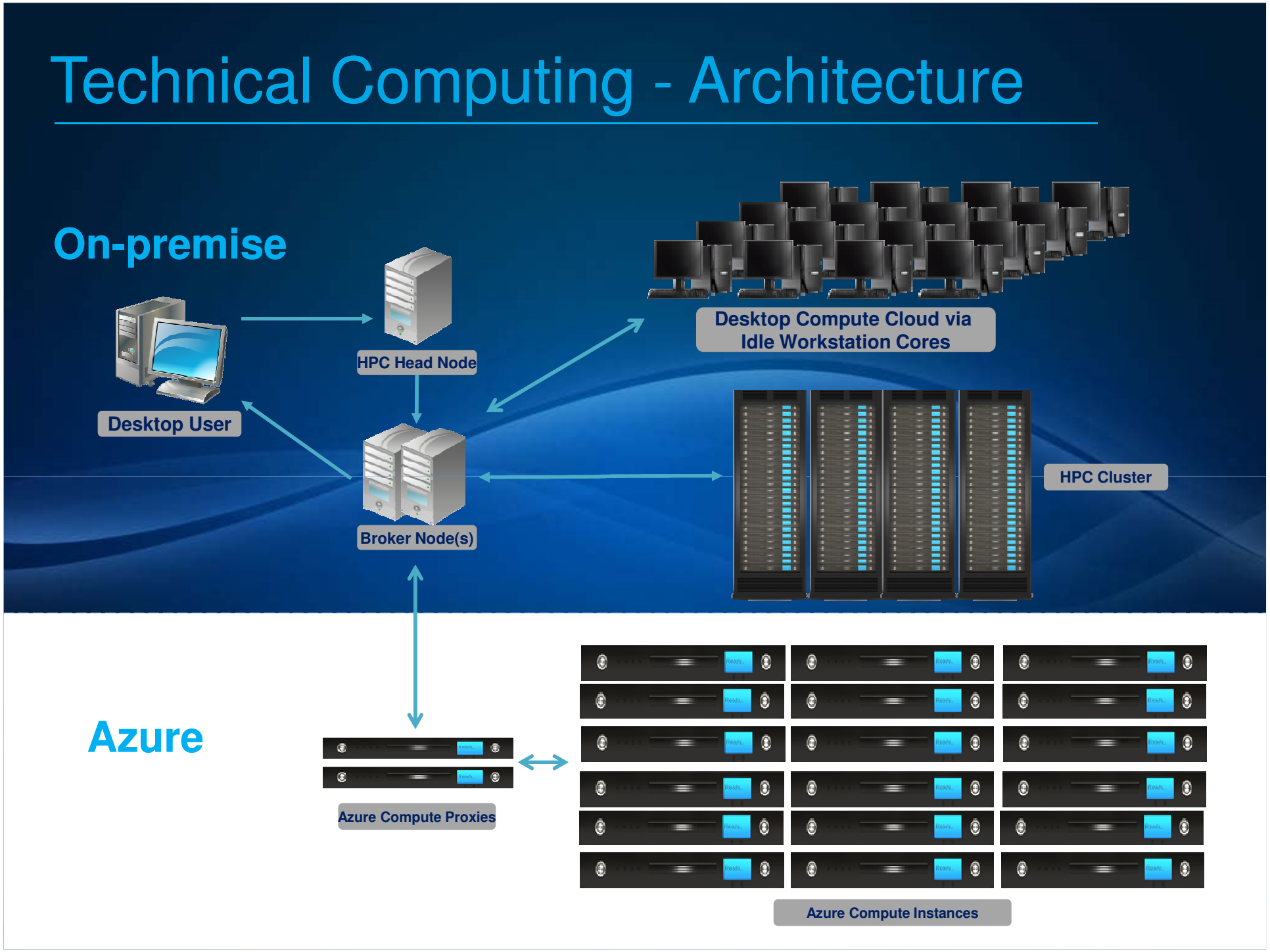
multiple nodes
distributed memory

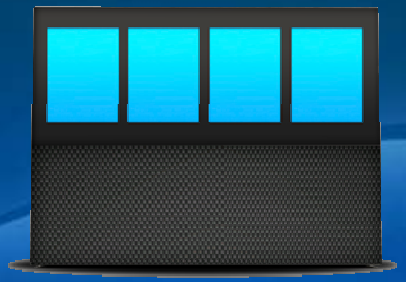
Cloud

multiple node
distributed memory
on demand capacity

Microsoft Technical Computing

Technical Computing - Architecture





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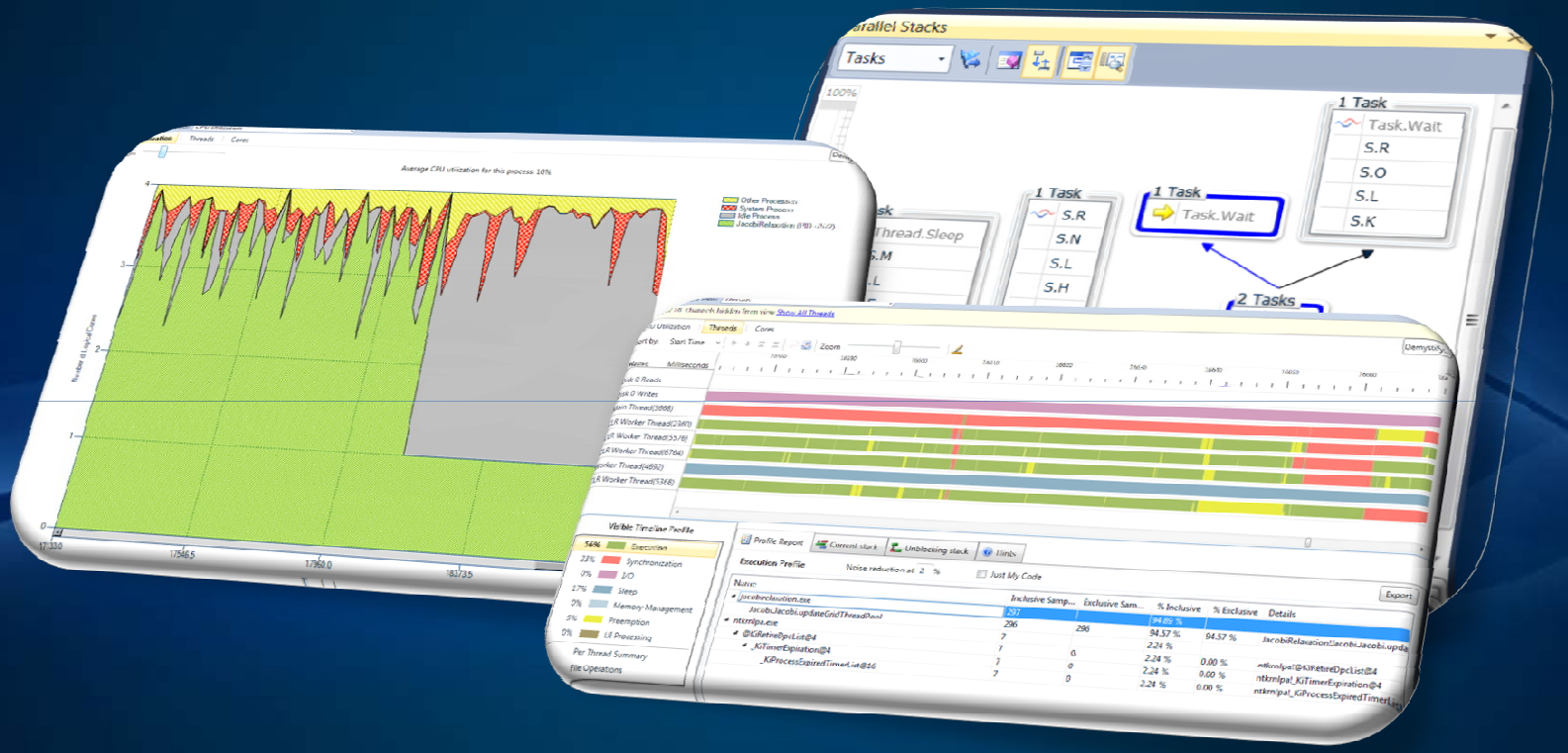
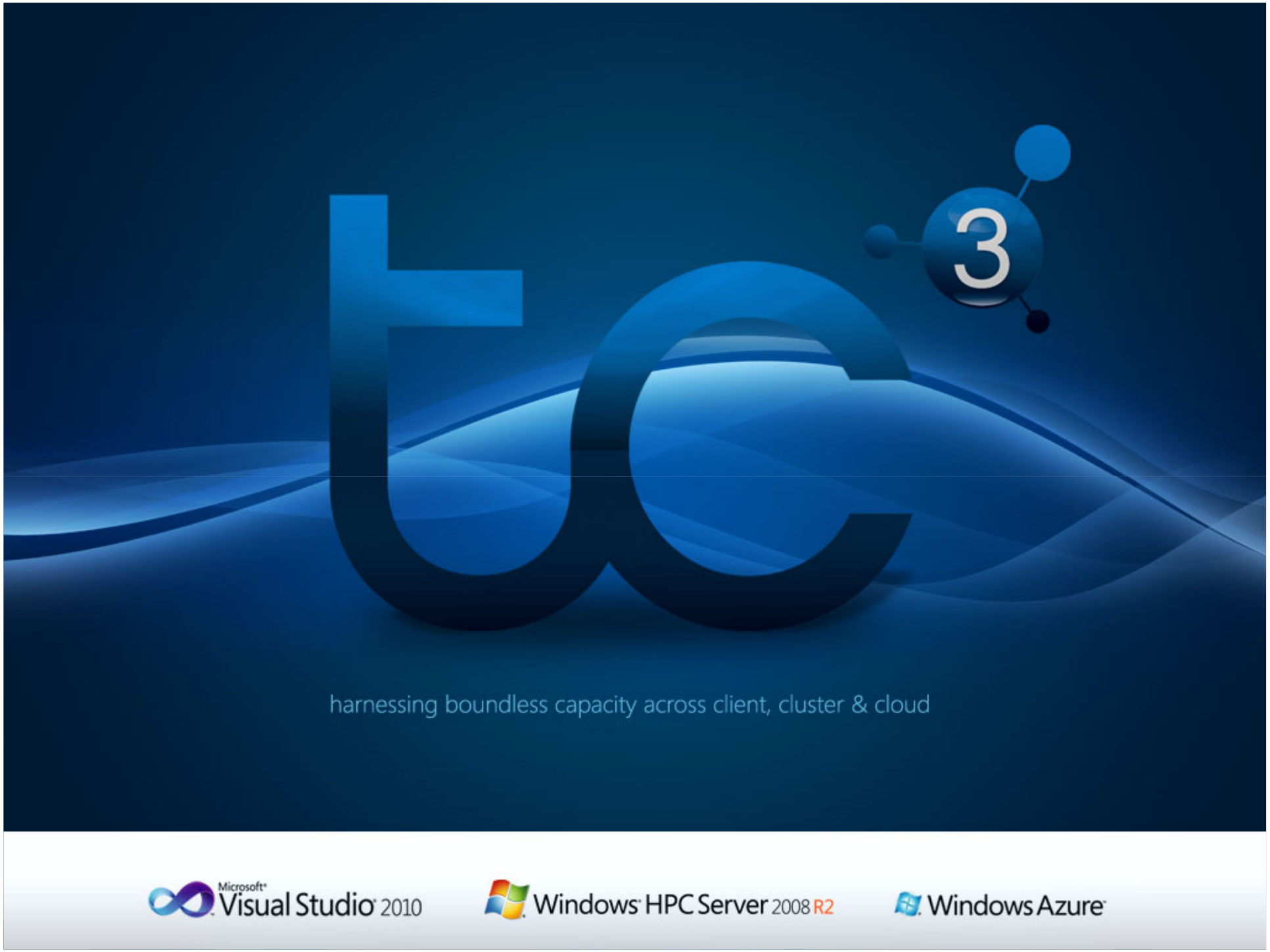
Parallel Development on Windows



Microsoft® Visual Studio® 2010

Parallel Programming for the masses – Excel 2010


tc
3
harnessing boundless capacity across client, cluster & cloud
Microsoft Visual Studio 2010
Windows HPC Server 2008 R2
Windows Azure

ANNOUNCING!

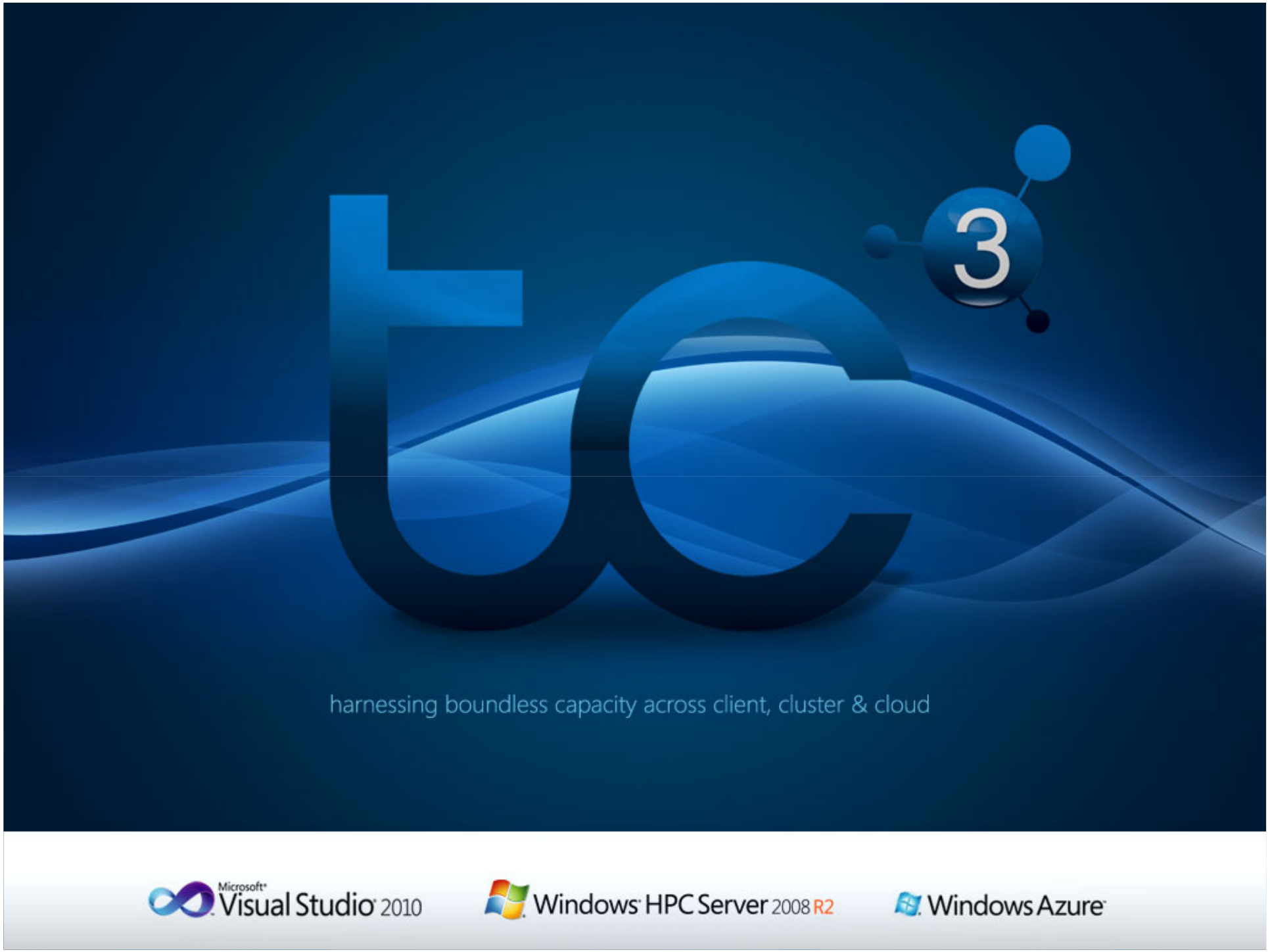
Windows® HPC Server 2008 R2

GENERAL AVAILABLITY

Windows HPC Server 2008 R2

- Complete, integrated platform for HPC Clustering
- Built on top Windows Server 2008 R2 64-bit Operating System
- Addresses the needs of traditional and emerging HPC

Windows Server 2008 R2 HPC Edition		Microsoft HPC Pack 2008 R2 Enterprise		Microsoft Windows HPC Server 2008 R2 Suite
• Secure, Reliable, Tested • Support for high performance hardware (x64, high-speed interconnects)	+	• Job Scheduler • Resource Manager • Cluster Management • Message Passing Interface • Support for Workstation Nodes	=	• Integrated Solution out-of-the-box • Leverages investment in Windows administration and tools • Makes cluster operation easy and secure as a single system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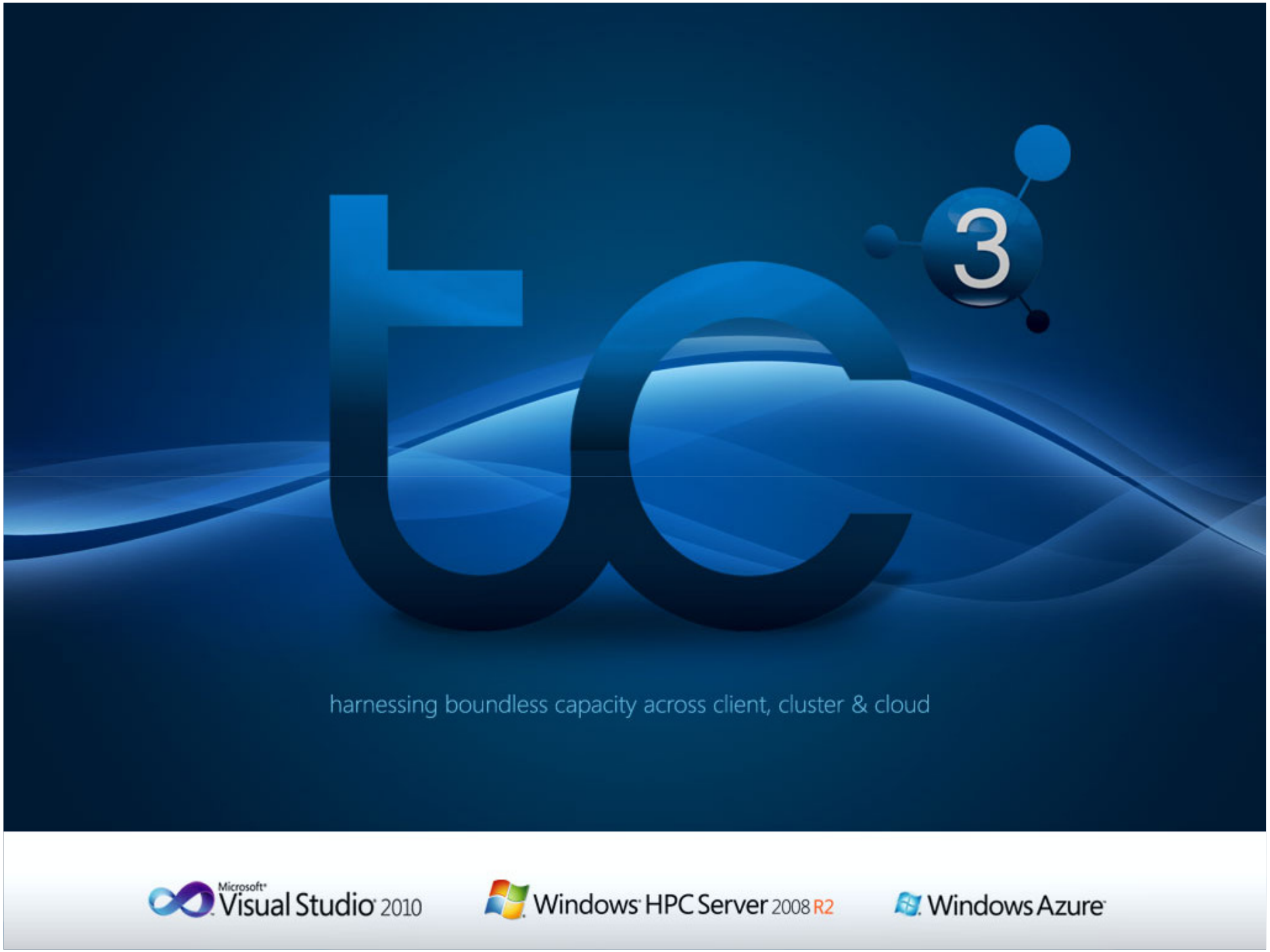
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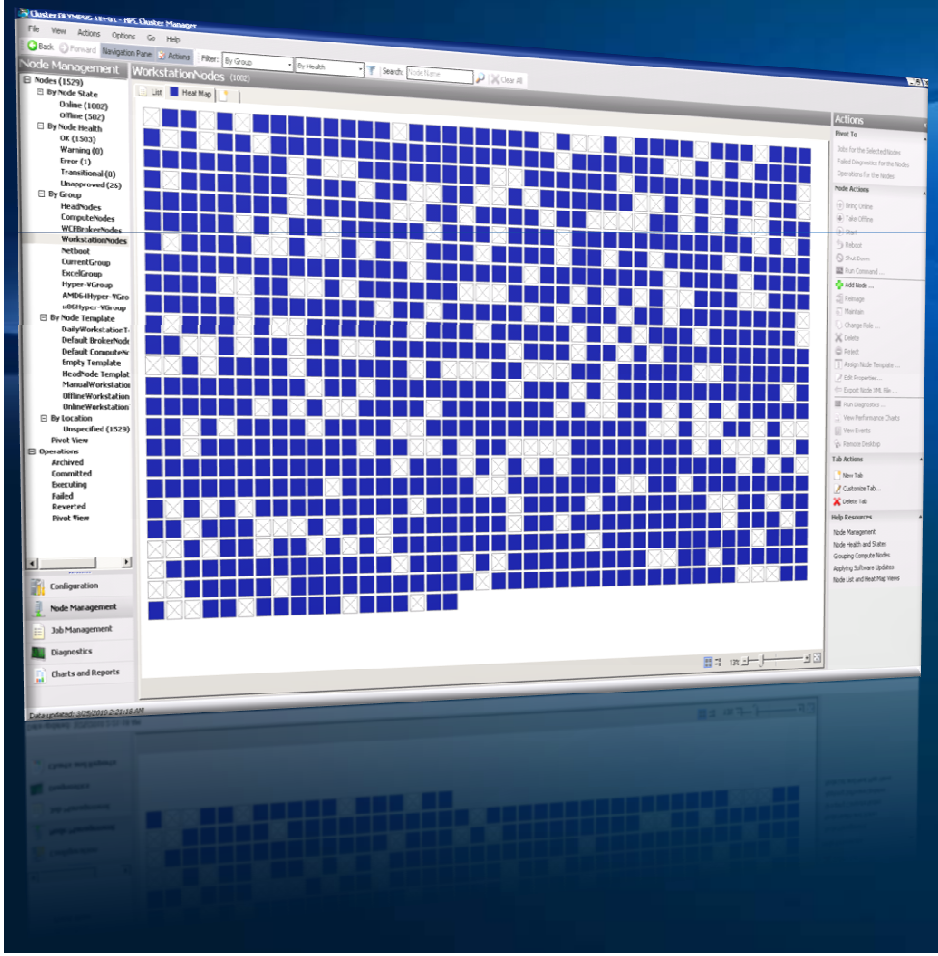
Support for Workstation Nodes

Expand the capacity of HPC clusters while increasing the return on your existing technology investments by utilizing workstation for running compute Jobs



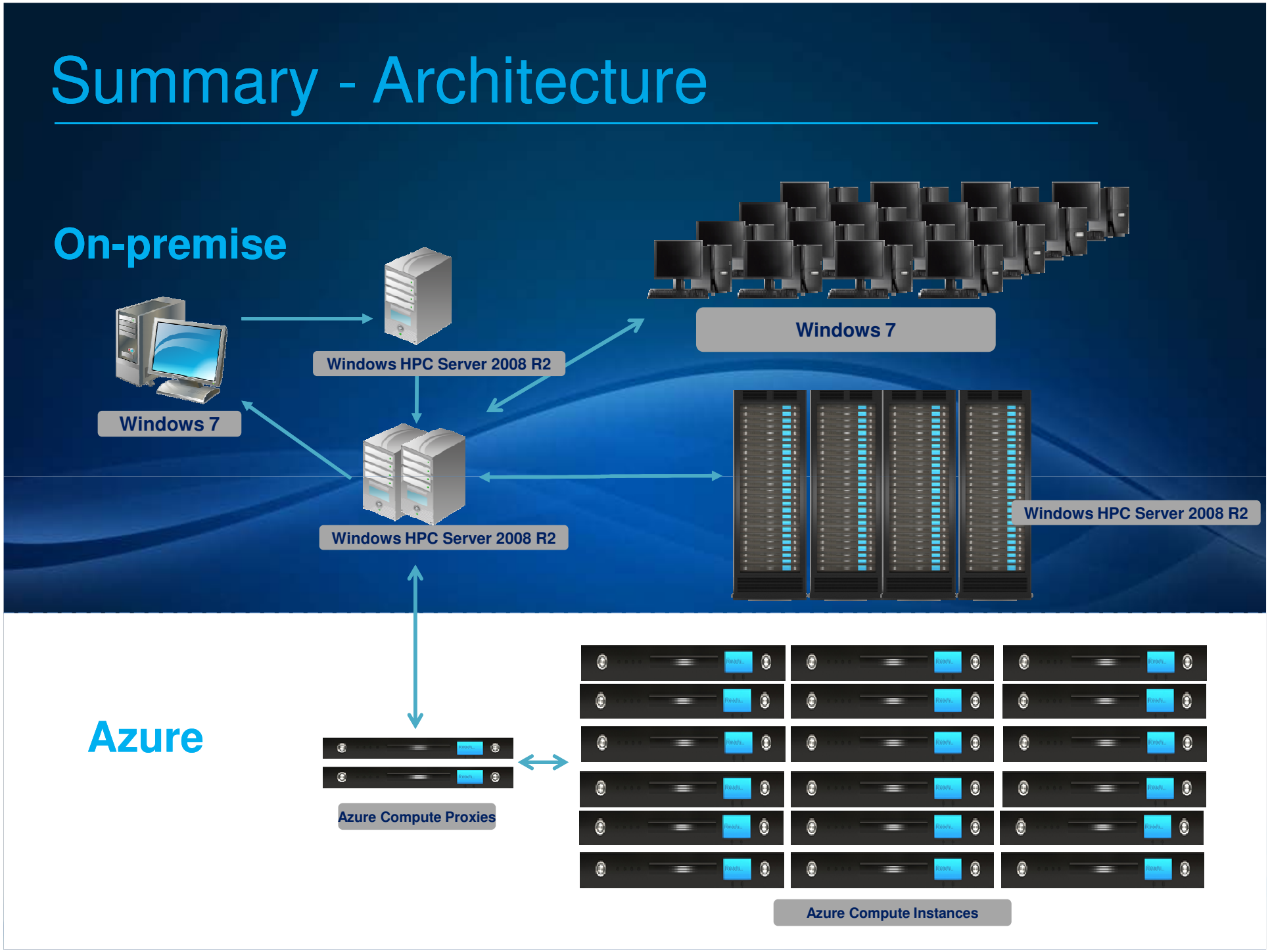
Feature Summary

- The ability to add Windows 7 workstations as compute nodes
- View and monitor workstations the same as dedicate compute nodes
- Time of day scheduling for Workstation availability
- Draining interval for graceful preemption

Requirements

- Windows 7 Professional or Enterprise, 32 or 64-bit (requires Active Directory support)
- Desktops and cluster in same AD Domain

Summary - Architecture



Cloud

multiple node
distributed memory
on demand capacity

Why Microsoft? Why Now?
Commitment to HPC

- Microsoft provides easy to use technology with a reduced total cost of ownership
- A wide range of organizations such as financial services, oil and gas, manufacturing and geological services a companies are prepared to maximize the use of the familiar Windows-based platform
- Microsoft is committed to investing in the future of HPC

Microsoft is committed to investing in the future of HPC and growing the market with its partners

harnessing parallelism across client, cluster & cloud

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