

Virtualization's Past, Present, & Future Ten Strategic Paths for 2012 and Beyond

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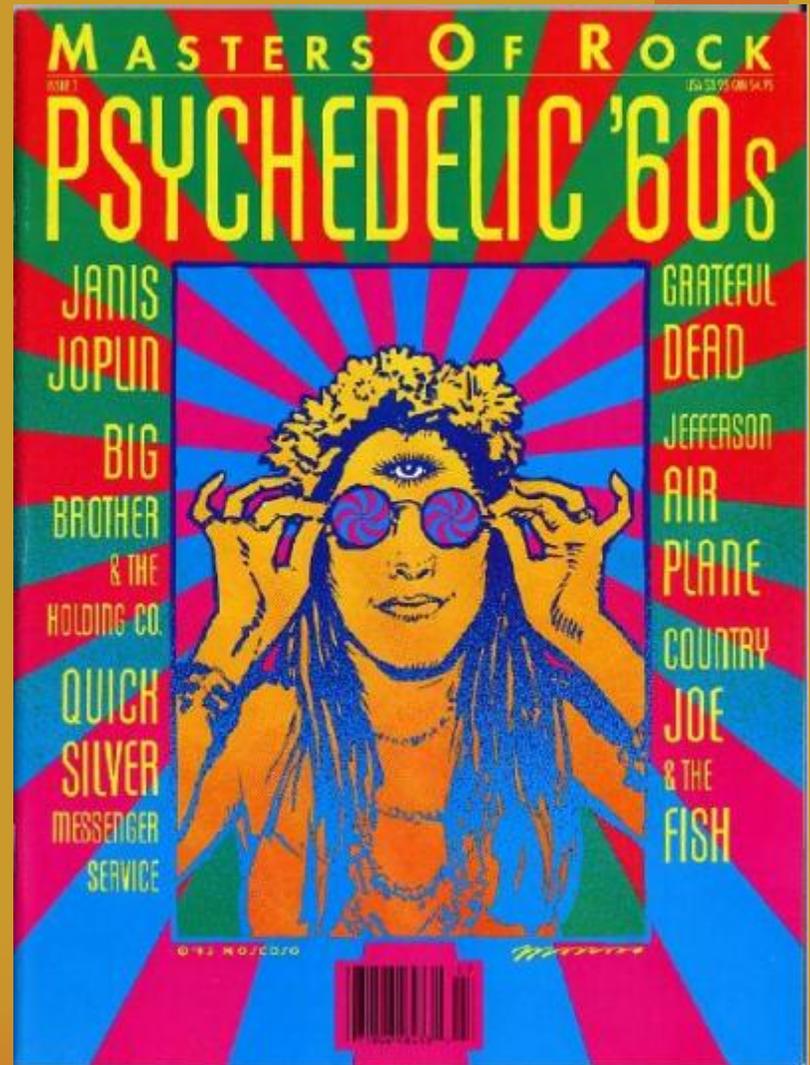
Where We've Been...

“Those who cannot remember the past
are doomed to repeat it.”

- George Santayana,
Reason in Common Sense

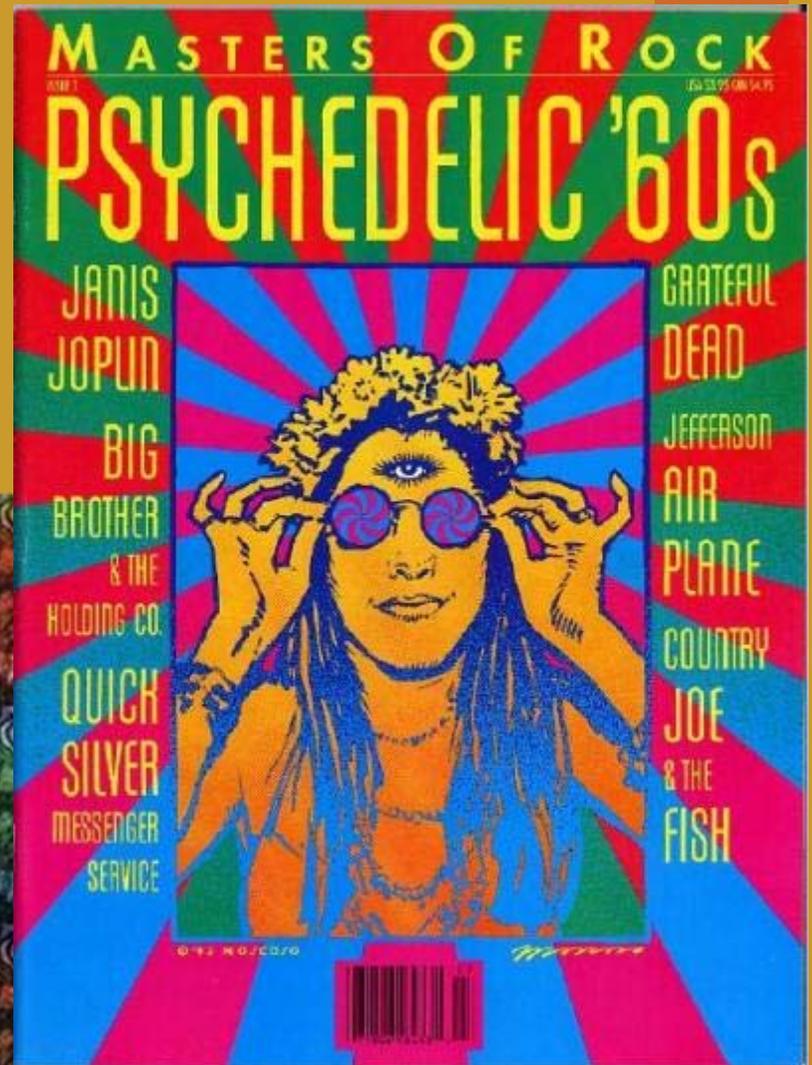
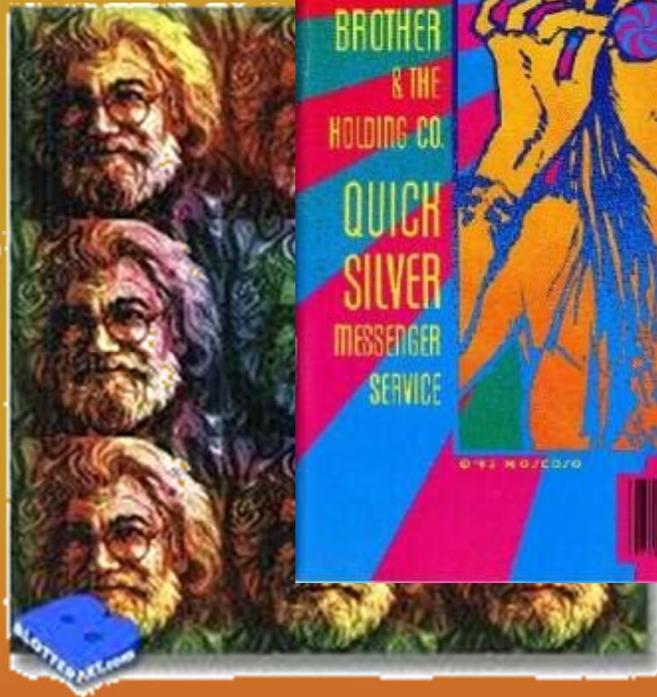
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- SHOCKER: Cloud computing began at about the same time.



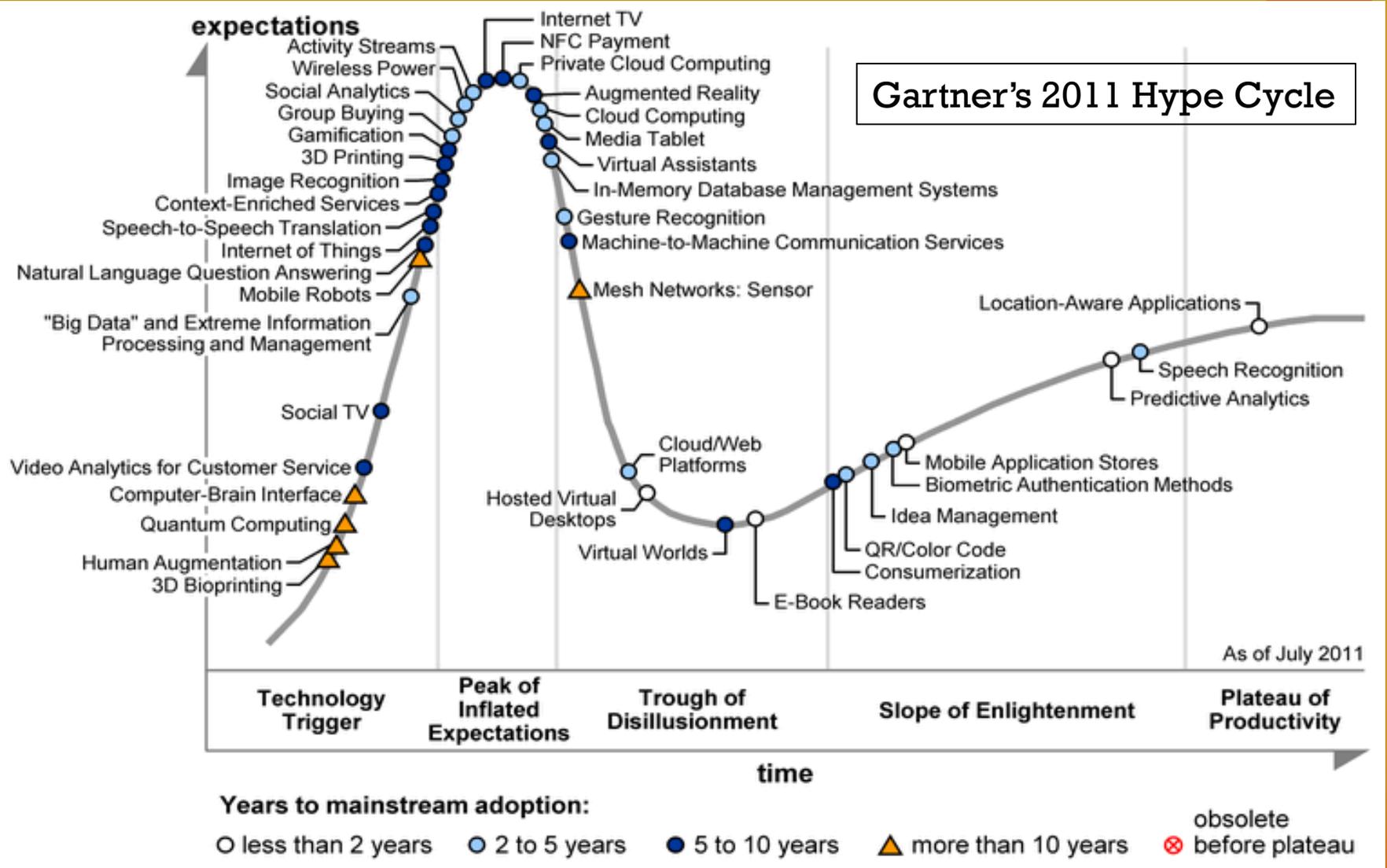
Virtualization & Cloud Computing are Strategic Decisions

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 - Was yours?

Virtualization & Cloud Computing are Strategic Decisions

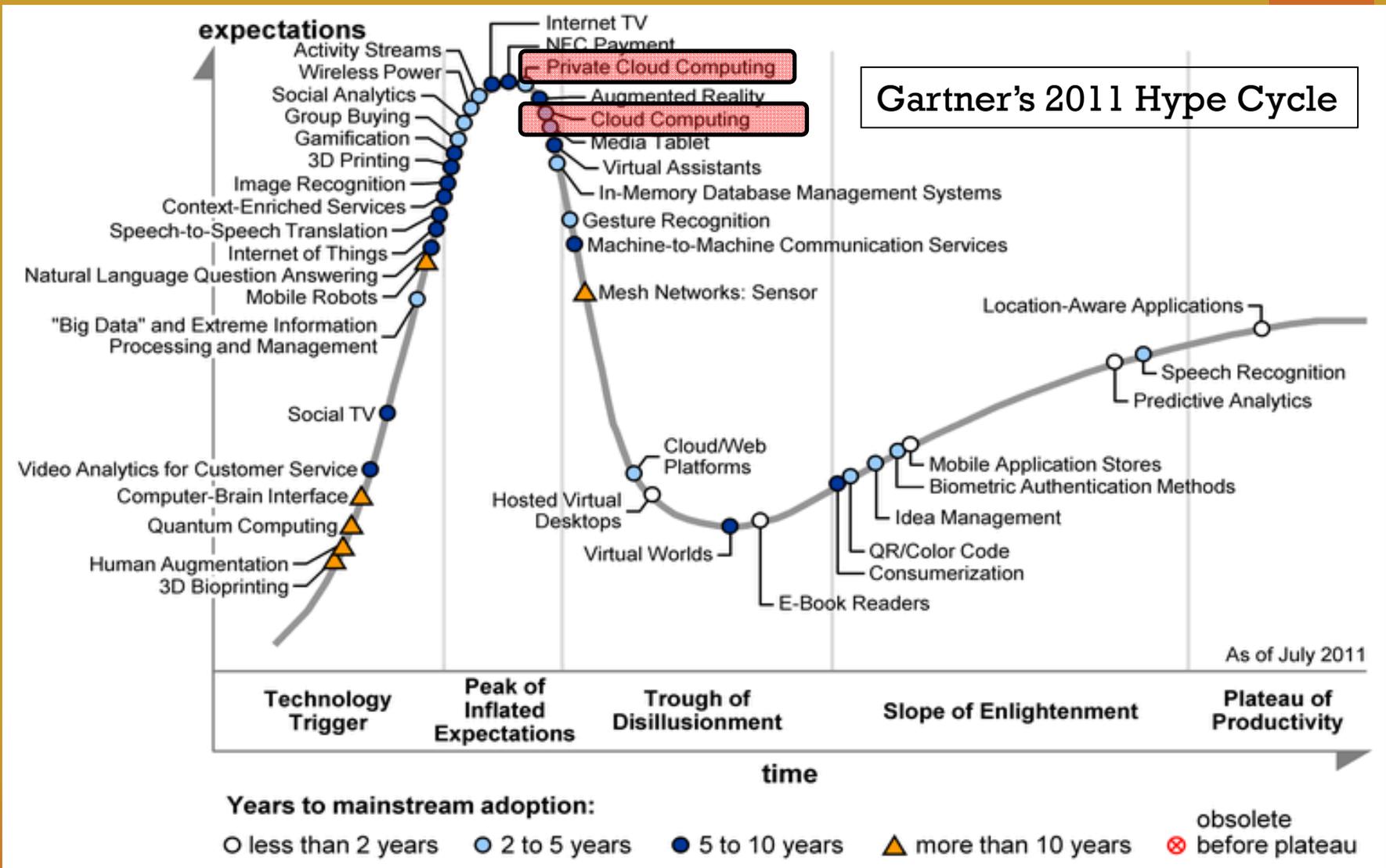
- Back in 2009, Gartner identified Virtualization and Cloud Computing as two of the top ten strategic IT technologies.
 - Was yours?
- It also reported that Cloud Computing had reached the apex of the firm's *Hype Cycle for Emerging Technologies*
 - Expected to be two-to-five years from mainstream adoption.
 - That was four years ago...

Where We're At...



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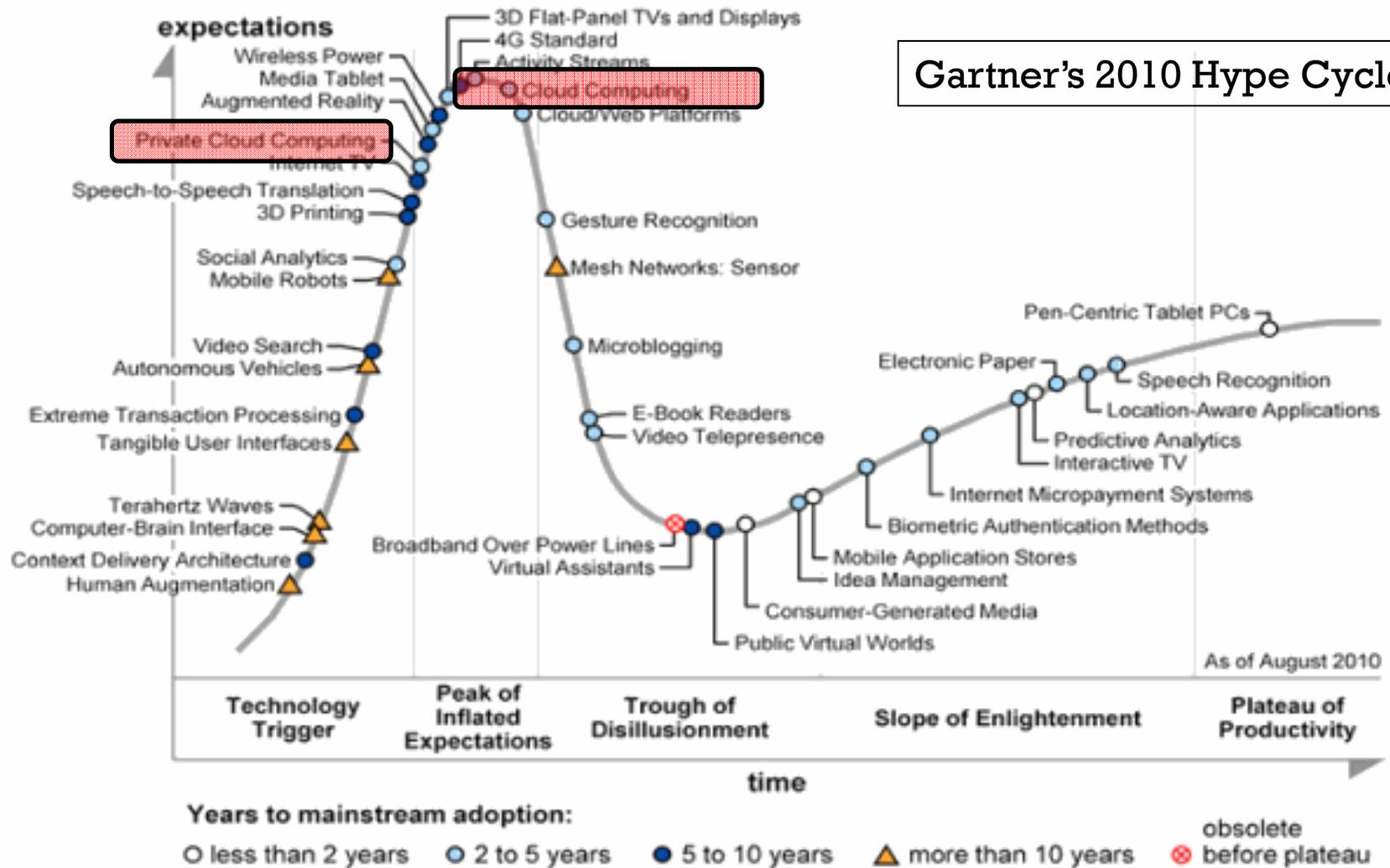
Where We're At...



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...compared to 12 Months Prior.

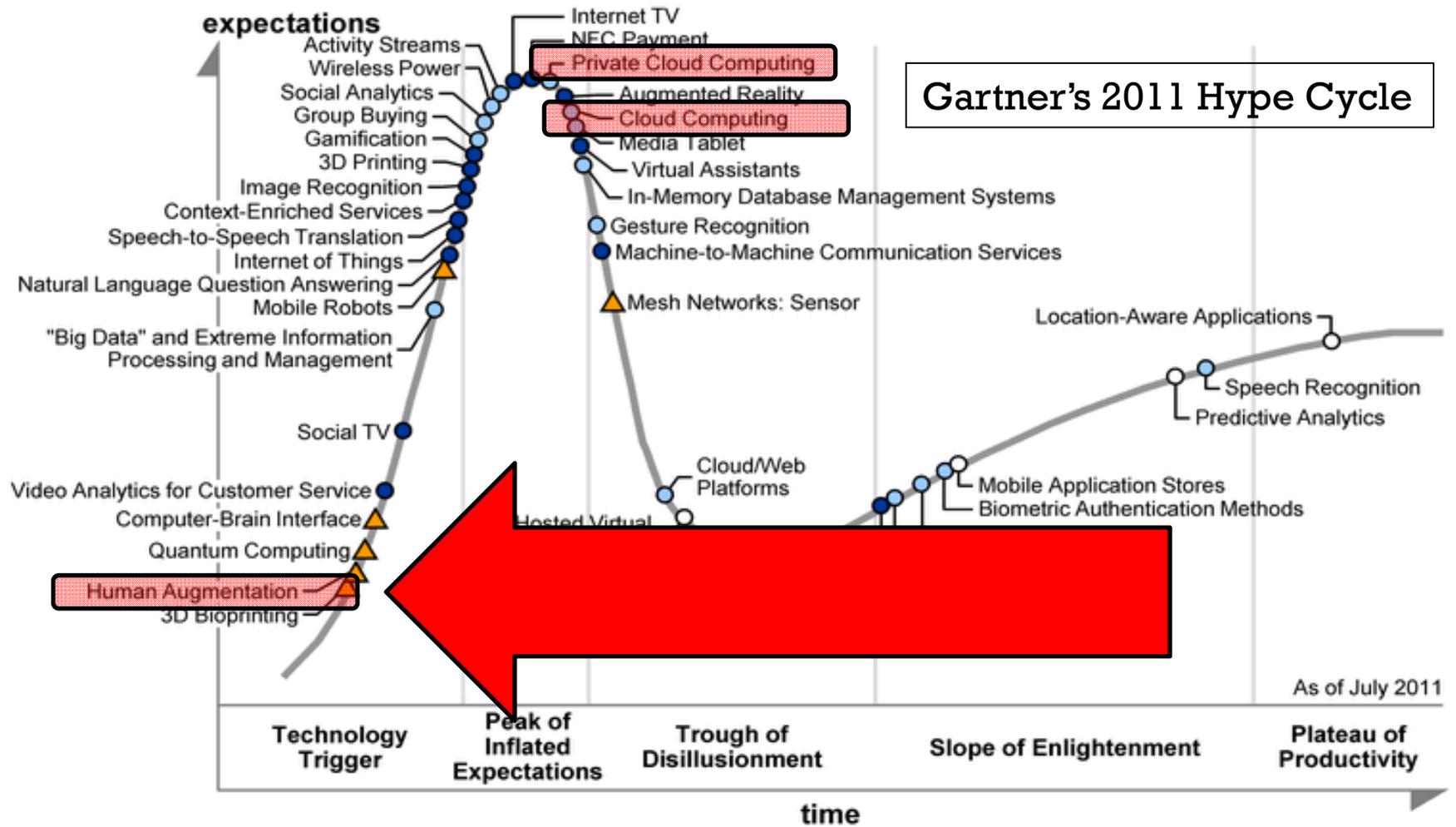
Gartner's 2010 Hype Cycle



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Still a Long Ways Off...

Gartner's 2011 Hype Cycle



Years to mainstream adoption:

○ less than 2 years ● 2 to 5 years ● 5 to 10 years ▲ more than 10 years ⊗ obsolete before plateau

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Where We're At

(The Good News)

- In its 2010 industry predictions, Garter reported that 51% of workloads will be virtualized by the end of 2011.
 - 23% of installed applications running in a VM.
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 - 23% of installed applications running in a VM.
 - We have met those predictions.
- Budgets are returning, according to a recent Data Center Decisions survey.
 - In 2009, 40% of datacenters faced budget cuts.
 - 20% seeing more than 10% cuts.
 - In 2010, only 20% face budget cuts.
 - 46% seeing an increase.

Where We're At

(The Good News)

- That same survey suggests the reasons for virtualizing are also maturing.
- Take a look at the numbers...
 - 46% - Increasing capacity
 - 42% - Enhancing virtualization capabilities
 - 39% - Replacing servers hitting end-of-life
 - 38% - Supporting new applications
 - 25% - Improving server efficiency
 - 24% - Reducing floor space and server consolidation

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- Evidence? Datacenter capacity constraints have dropped.
 - 60% drop in datacenters expecting capacity constraints.
 - Suggests that virtualization's early SPC value props were valid.
- Continuing adoption of virtualization technologies means businesses are seeing process alignment.
 - E.g. Virtualization is better than No Virtualization, net net.

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(The News to Watch)

- VMware today remains far in front of its competitors.
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- VMware today remains far in front of its competitors.
 - VMware enjoys an 78% +/- market share.
 - Compare this to 38% for Microsoft and 18% for Citrix.
- VMware's dominance as virtual platform of choice is eroding.
 - Albeit, very, very slowly.
 - Hyper-V market share growing 215% and XenServer growing 290%, although these percentages are on very low numbers (IDC).
 - The "simplified virtualization" meme resonates with low-complexity environments and SME. That meme has heavy association with Hyper-V.

Where We're At

(The News to Watch)

- Hyper-V and XenServer remain behind on key capabilities...
 - Management tools, particularly those for large implementations.
 - Clustering and cluster architecture.
 - Private Cloud-enabling resource controls.
 - Resource quantification methodology.

Where We're At

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 - Management tools, particularly those for large implementations.
 - Clustering and cluster architecture.
 - Private Cloud-enabling resource controls.
 - Resource quantification methodology.
- That said, Hyper-V's capabilities are at parity or superior in a few important areas...
 - Memory management, in WS2008 R2 SP1.
 - Transport protocol, in WS2008 R2 SP1, and again in WS8.
 - Virtual networking, in WS08.
 - Driver support, due to its Hybrid Type 1 hypervisor architecture.

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- SEA CHANGE: Core virtualization technologies appear to be approaching a tipping point.
 - vSphere 5.0 was largely an evolutionary release.
 - Hyper-V v3 is expected to be revolutionary.
- **The sex in virtualization is no longer in virtualization.**

Where We're At

(The Bad News)

- 60% of virtualized servers will be less secure than the physical servers they replace (Gartner).
- 44% still avoid virtualization for mission-critical workloads due to concerns about backups and security (VMware Data Protection Report 2010, Veeam).
 - Virtual security controls haven't kept pace with adoption.
 - Some security controls unacceptably decrease VM performance.
 - Backups remain a problem.

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Where are We Going?

- OPINION:

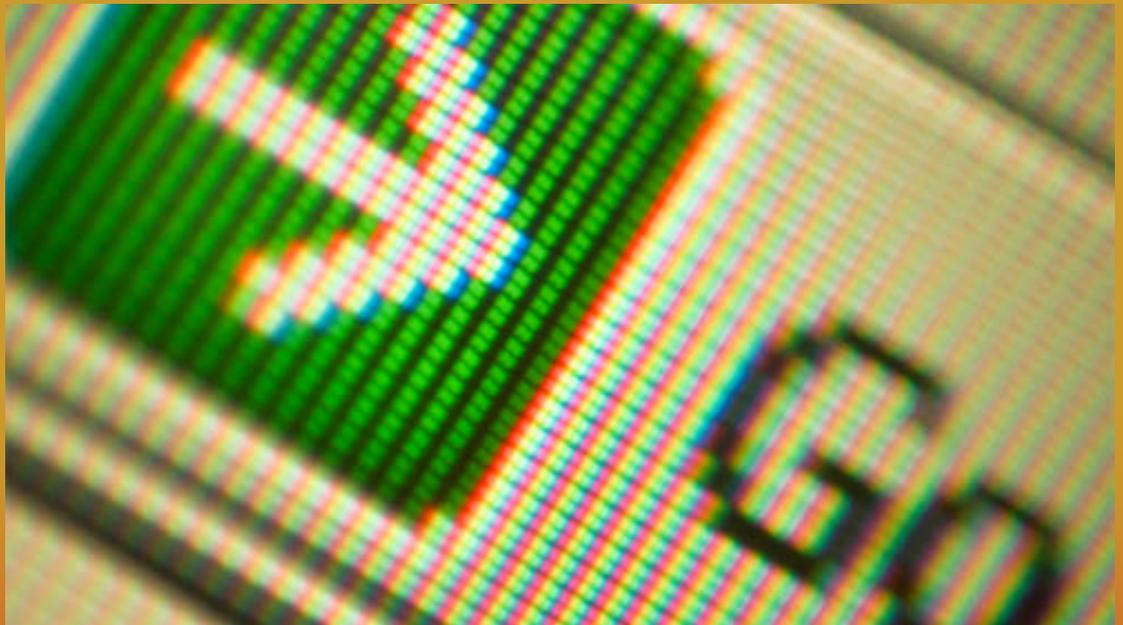
Virtualization's pace of innovation appears to have plateaued.

- This is a good thing.

- Virtualization is undoubtedly the ~~future~~ present.
- Late arrivals are learning from mistakes made by early adopters.
- Simple virtualization will evolve to Private Cloud with less risk.
- Hardware vendors are beginning to catch up. Hardware “designed for virtualization” is now a reality.
- Hypervisor feature stability refocuses ISV attentions on management tools, better approaches, better best practices.

Ten Strategic Paths

- So...admittedly, statistics lie.
 - But value can be gained in reading between the lines.
 - I suggest they expose Ten Strategic Paths for 2012 and beyond.



Strategic Path #1

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 - Includes first-party management capabilities, but also critically necessary add-on products.
 - Service-centrism is a focus in the next evolution.
 - Some tools for this exist: HP, BMC, Quest, Microsoft, others.

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 - **Success requires filling certain notable gaps:**
 - Capacity and performance management.
 - Backup and restore.

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 - Intel estimates 99% of all workloads can be virtualized today.
 - Private Cloud represents the most viable solution today for optimizing enterprise hardware resources.
 - Consolidation need not always be the goal.
 - 1:1 virtualization can make sense when other factors are considered.

Strategic Path #2.5

- Virtualization in SME must also become the standard.

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- Virtualization in SME must also become the standard.
- Five Key Reasons:
 1. Simplified Virtualization meme brings an assist.
 2. Virtualization platforms are now more cost-effective, net net.
 3. Storage options are growing in number. Watch this space carefully in the Server 8 wave.
 4. Add-on products for backup/DR/security/management see excellent momentum in SME. Short sales cycle and low complexity are an assist.
 5. Virtualization knowledge and experience is now mature. Architectures can be implemented by technology generalists.

Strategic Path #3

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 - Yes, Cloud will be a disruptive force, including with people’s jobs.
- **NOTEWORTHY OBSERVATION:** The iPad and its copycats may be our industry’s greatest motivator towards embracing cloud ubiquity for applications.
 - First acceptable new form factor for application delivery since the laptop.
 - World of work is forcing IT to evolve towards a coming “IT 2.0”. (More on this in a minute)

Strategic Path #4

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 - Think back about that iPad story.
 - IT 2.0: “It is the core mission of IT to create, manage, and ensure the secured access to business applications and data.”
- Greg Shields, TechNet Magazine, Feb. 2010

- VDI can fulfill that mission, but it is merely one in a suite of potential delivery mechanisms.

Presented applications
Streamed applications
Web applications
VM-hosted applications

Presented desktops
Cloud-based applications
Client-based desktops

Strategic Path #5

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- ...yet virtualization at the desktop might be.
 - Honestly, still too early to tell.
 - Client hypervisors suggest a future where we can care less about desktop hardware, drivers, deployment, management.
 - These are all the expensive activities that don't add much recognizable value.
 - IT 2.0 is all about ubiquitous and secure access to applications and data, the “same experience” indifferent of form factor and location. Client hypervisors facilitate this.
- SUGGESTION: {Watch this space.}

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 - Virtualization complicates troubleshooting.
 - Any human lacks the necessary instrumentation and analysis to best determine VM composition and consolidation ratios.
- A central tenet of Private Cloud thinking is the quantification of resource supply and demand.
 - Hardware presents supply of resources; workloads exert demand pressure.
 - These two must meet for successful performance.
 - Virtual platforms must provide actionable data to administrators on existing and projected supply/demand.

Strategic Path #7

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 - Legal Problem: Many compliance regulations have not kept pace with virtualization innovation. Lawyers and senators don't grok virtualization.
 - Security Problem: Most security solutions work. Many of security's early brute-force approaches were inappropriate for virtual environments.
 - Performance Problem: Virtual environment-friendly solutions require a lighter touch.

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 - Virtualization's needs have created an incredible resurgence of storage innovation.
 - The old storage norms are growing irrelevant: "Good riddance to monolithic!"
 - Early storage adopters suffer under early infrastructure purchase decisions. In fact, for 89% of you storage selection is not motivated by virtualization! (Forrester, 2009)

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- Windows 8. Windows 8. Windows 8.

Strategic Path #9

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Strategic Path #9

- Get yourself a working Disaster Recovery solution, now.
 - Notice I didn't say "plan" here.
 - Virtualization and its ancillary technologies enable businesses of all sizes to find affordable DR solutions.
 - Hot site → Warm site → Cold site → A Really Big USB Drive
 - Just go get one. Soon.

Strategic Path #10

- “Virtualization is no longer cool.”

- Keith Ward, Former Editor,
Virtualization Review Magazine

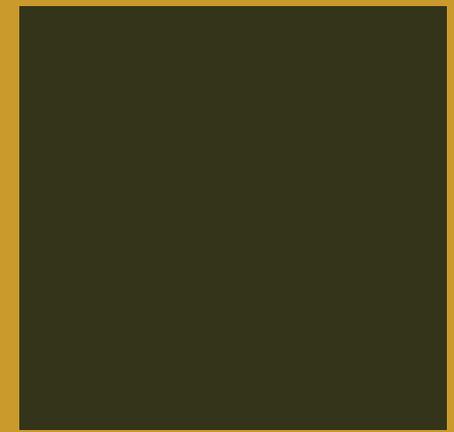
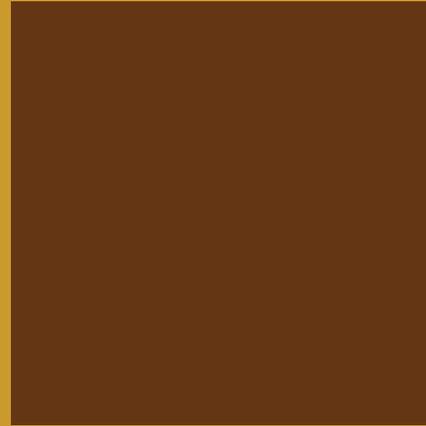
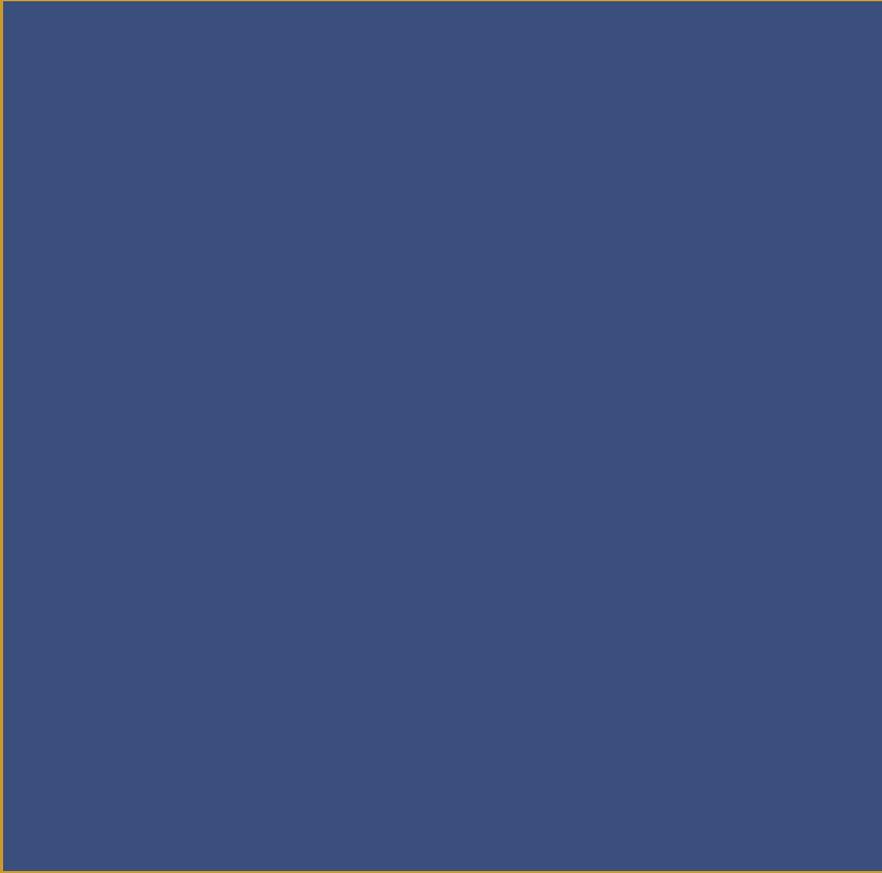
- This is also a good thing.
 - When a technology is “cool”, we make irrationally exuberant decisions about its implementation.
 - When a technology is “no longer cool”, we can make smart decisions about its implementation.

Strategic Path #10

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- Virtualization isn't the answer to everything.
- Today's virtualization approaches may not be tomorrow's.
- Smart orgs recognize that change is the only constant.
- Plan for change.



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