



The Future of Cloud Computing

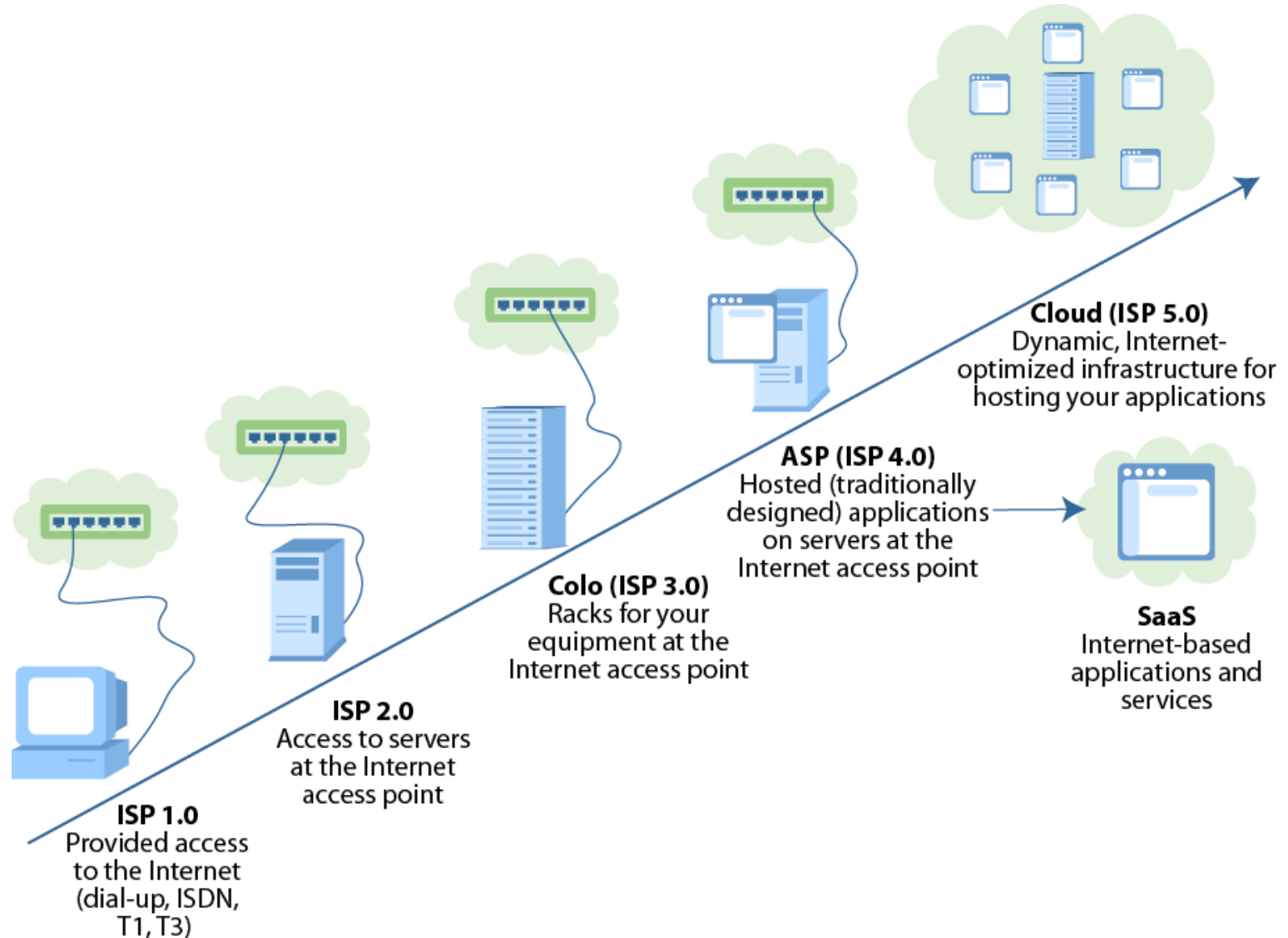
And its disruptive affect on enterprises and markets

Vikram Rana T'08

Agenda

- Evolution to SaaS and Cloud Computing
- Current Cloud Computing Market Overview
- Webdesc: Case Study
- Barriers to Adoption
- Future Catalysts
- Recommendations

Evolution to SaaS and Cloud Computing



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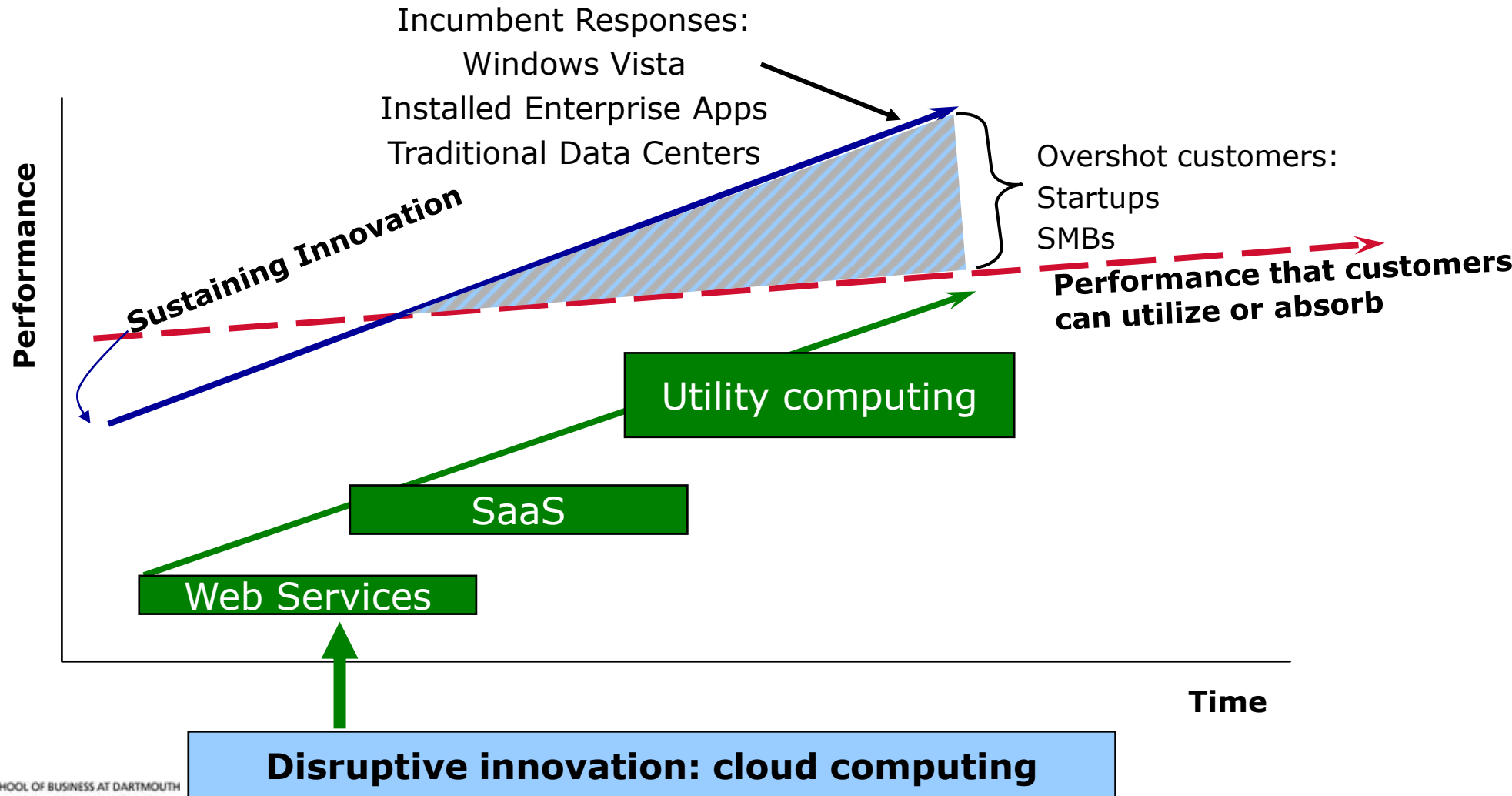
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What do you mean Cloud Computing?

"A pool of abstracted, highly scalable, and managed compute infrastructure capable of hosting end-customer applications and billed by consumption."

Segment	Description	Value Prop	Competitors	Customers
SaaS	Packaged apps delivered over the Internet	• Lower cost of ownership • Reduced up-front investment	• Salesforce.com • Google Apps • ZoHo Office	• Large enterprises • SMBs
HaaS/Utility Computing	Virtual datacenter (enterprise) Virtual hardware (consumers)	• Lower costs • Reduce time-to-market	• Amazon Web Services • Akamai • 3Tera AppLogic • Goowy desktop	• SMBs • Consumers (early adopters)
Web Services	APIs delivered over the Internet	• Reduce time-to-market • Increased functionality	• Google Maps API • ADP Payroll processing • USPS	• SMBs • Large enterprises
PaaS	Complete development environments	• Similar to HaaS • Adds integration layer	• Google App Engine • Force.com	• SMBs

Cloud computing is a classic disruptive technology

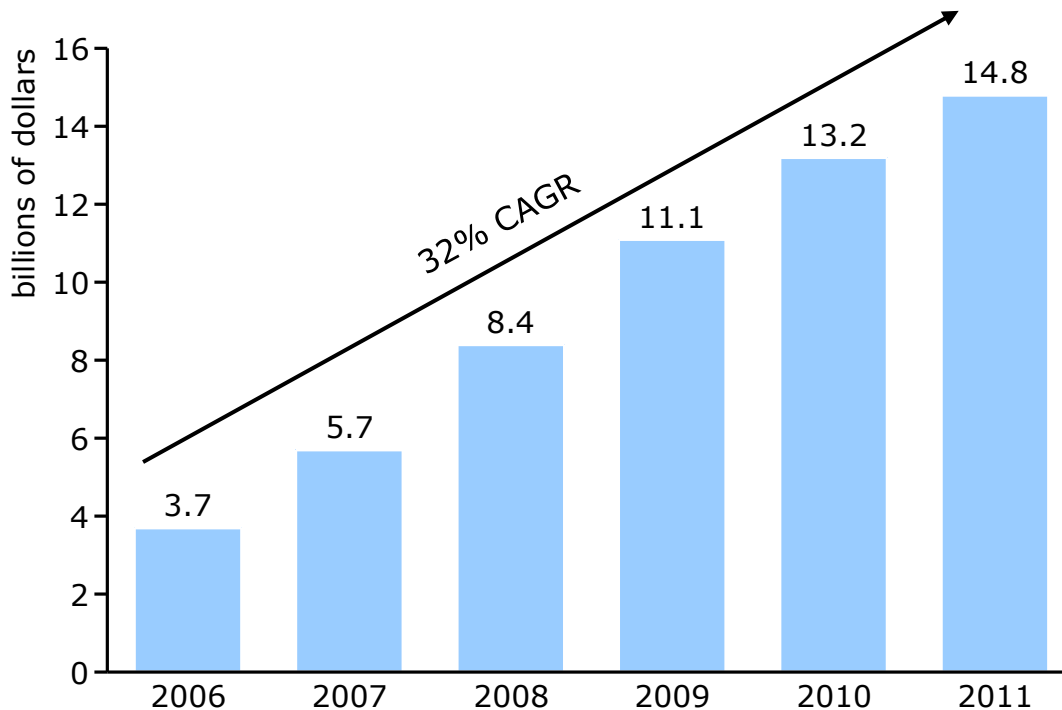


Cloud computing: access to world-class IT for the low-end enterprise market

	In-Market Disruption	Application to Cloud Computing
Customers	Overshot customer at low end of existing market	SMBs and start-ups who can't afford the initial investment in or complexity of enterprise IT
Technology (product/service/process)	Good enough performance at lower prices	• Standardized, virtual H/W prescribed by the cloud vendor • High Availability through dynamic infrastructure S/W
Business Model	Attractive returns at lower prices	• Pay-by-consumption (free in some cases) • Flexibility to expand or drop service instantly (no contracts) • No S/W or H/W installation • Greatly reduced time to market
Incumbent Response	Motivated to flee	• Large ERP/CRM and data center providers not serving smaller startups b/c of scale

Cloud Computing revenues are mainly SaaS driven

Worldwide SaaS revenue forecast



Worldwide SaaS revenue leaders

Company	2006 Revenues (MIL \$)	Market Share (%)
Salesforce.com	451.7	12.4
Webex	365.0	10.0
Digital Insight	211.8	5.8
Citrix Online	148.8	4.1
Microsoft (Live Meeting)	138.4	3.8
Others	2338.9	64.0

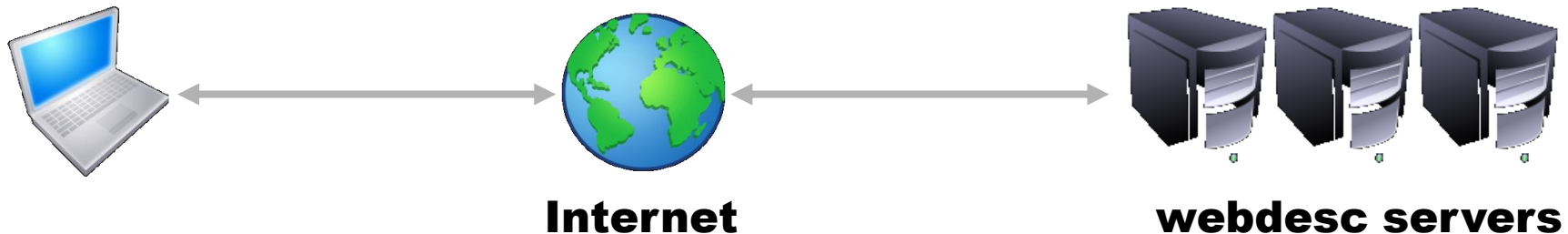
- SaaS revenue is 1.6% of \$237B worldwide software market (2006)
- Salesforce.com has 2.1M subscribers, 677M in sub revenues ('07) , and over 50% share of on-demand CRM
- Leading utility computing provider AWS has 300K developers, <\$50M in revenues

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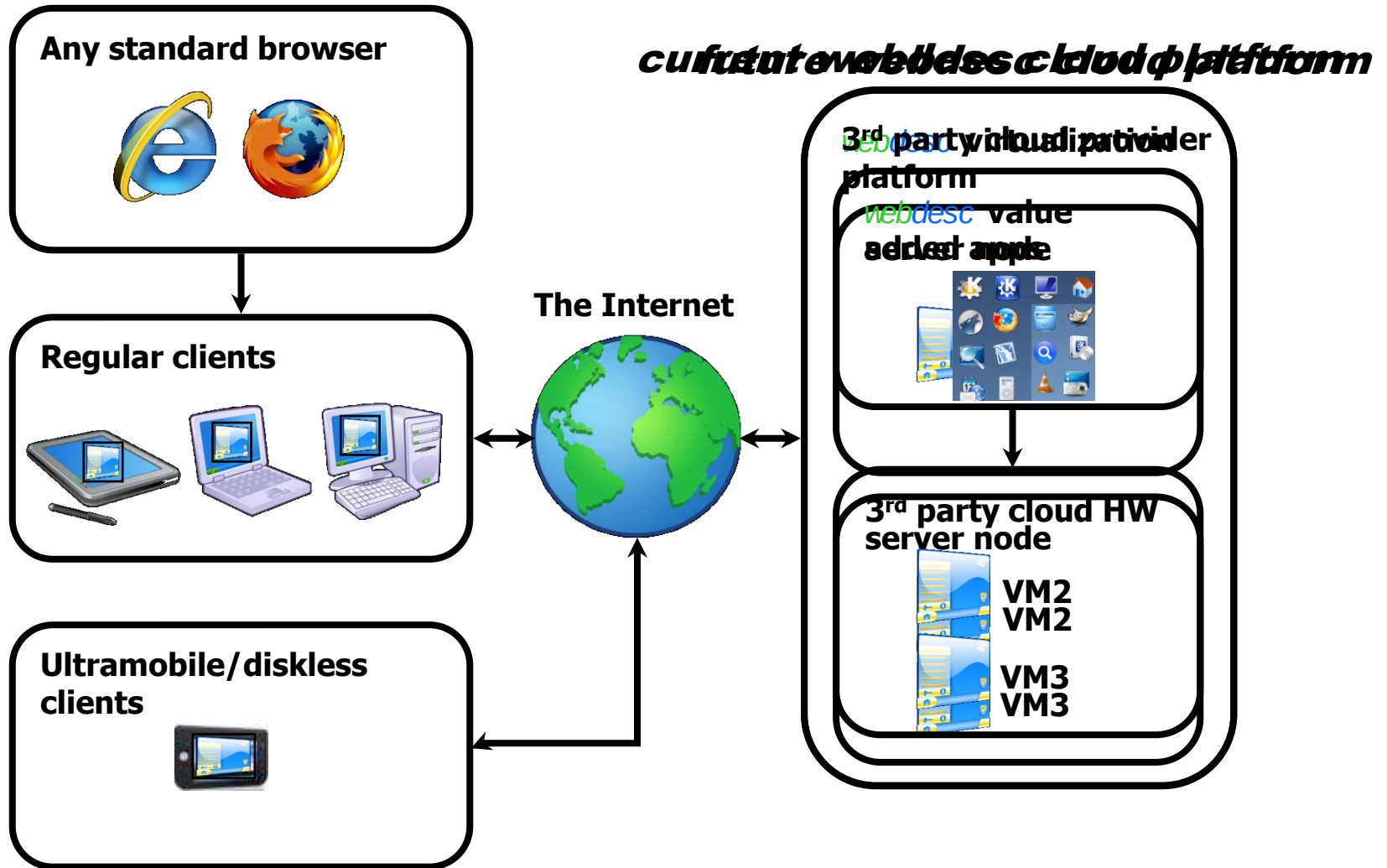
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webdesc: a new breed of start-up powered by the cloud

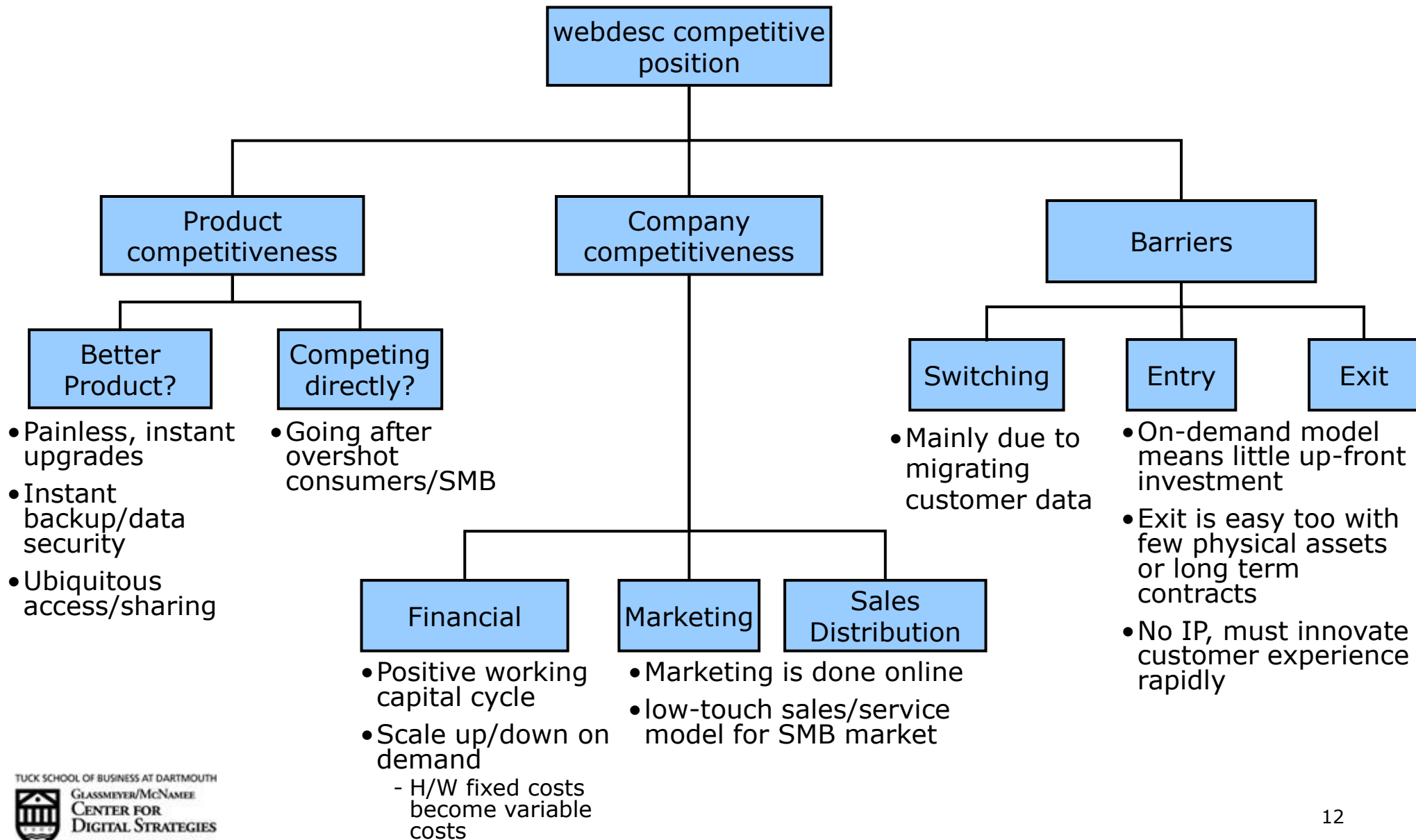
- Ultramobile **communications** device
 - Real keyboard & large screen
 - Less than 2 lbs
 - Multi-day battery
 - ~\$400
- Comes with Firefox, Skype, IM, e-book, MP3, video
- Online virtual computing platform
 - Hardware as a Service
 - Two years prepaid
 - Office + email suite
 - Can install software
 - 10GB storage
 - Can run Windows for more \$ (XP or Vista)



How does webdesc work?



webdesc business model is financially nimble and market responsive

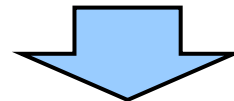


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Cloud computing is still relatively unproven

Business Model	• Few referenceable successes • Concerns over data security • May not support industry compliance standards	• Few large players offering clouds • Lack of commercial vendor support
Barrier to Adoption	• Technical complexity • Less integrated vs. stand-alone platform, reinvent the wheel • No geographic locality • Doesn't support monitoring/management	• Instability/lack of SLAs
Technical		
	Low	High
	Risk to Enterprise	

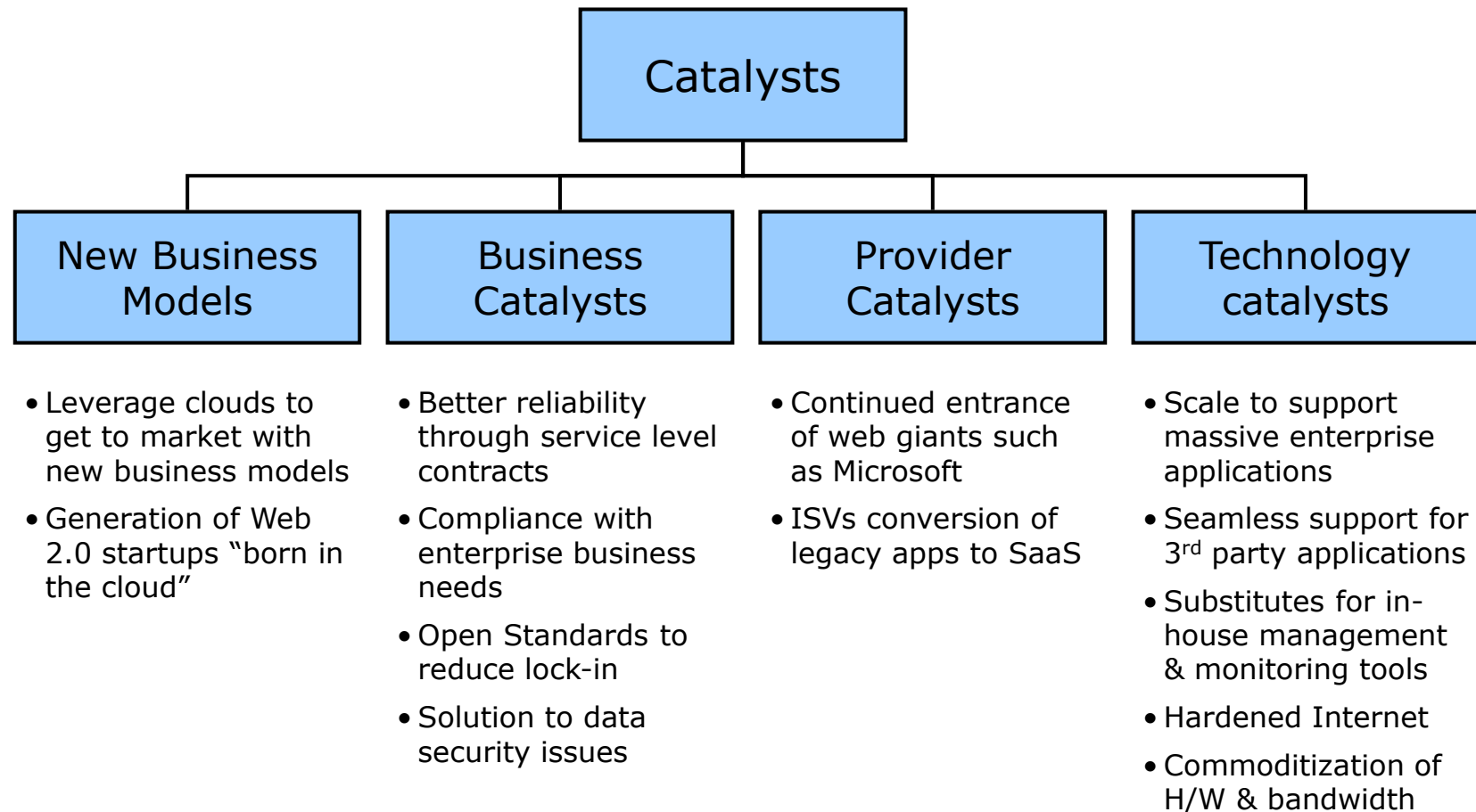


Enterprises should begin to experiment with cloud computing in areas of the business where they can afford risk

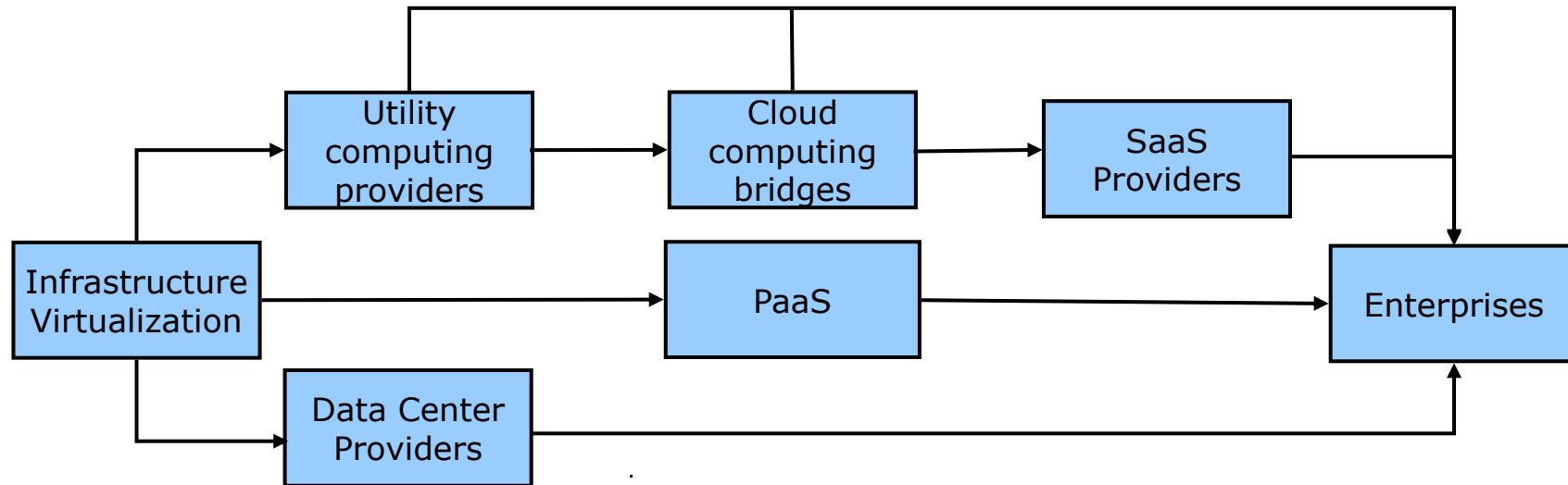
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Catalysts for Cloud Computing



Potential opportunities for cloud computing in future IT value chain



Opportunities

- Opportunities for next generation of cloud computing virtualization providers
- Opportunity for computing giants with massive data centers
- Good opportunity for bridge providers and integrated Platform as a Service (PaaS)
- Good opportunity for SaaS systems providers:
 - databases, app servers, and business intelligence

Current Offerings:



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Recommendations for Enterprises

Segment	Drivers/ Competitive Threats	Recommendations
Large enterprises	Hyper-competitive markets are pushing the business to demand ever faster time to market, reduced entry/exit barriers, while reducing IT costs	• Use clouds for hyper-prototyping and provisioning of applications • Roll-out lower risk areas of the business on clouds, e.g. internal Web2.0 apps such as wikis, blogs, virtual worlds as well as external collaboration sites • For those with massive internal data centers, consider becoming a cloud
SMBs	Cloud computing allows SMBs to have world-class enterprise application functionality at affordable price points	• Take advantage of enterprise class SaaS offerings in CRM, HRM, and collaboration
Start-ups	Most startups in SaaS or Web 2.0 are using clouds	• New entrants should build their infrastructure on clouds from the ground up to gain cost advantages • Existing companies should consider migrating to remain at par

Recommendations for ISVs, Data Center Providers, and Channel Partners

Segment	Drivers/ Competitive Threats	Recommendations
Data Center Providers	Run the risk of total disruption from data centers in the cloud	• Start thinking about transforming to a cloud through migrating to a virtualized infrastructure platform such as 3Tera's Applogic • Think about adding other value added services on top of clouds such as enterprise tools like Business Intelligence (BI), and databases
ISVs	Cloud computing allows SMBs to have world-class enterprise application functionality at affordable price points	• Start migrating value-added pieces of applications to the cloud as SaaS offerings • Manage channel partners to migrate to SaaS • Guard against channel conflicts and saturation
Mid-market VARs/SIs	Revenue losses due to disruptive nature of Clouds/SaaS on implementation projects	• Develop new skillsets such as business process and change management consulting skills • Adjust to smaller, ratable cash flows