Modernizing the Infrastructure:
Cloud Computing, Green IT

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Agenda

- Issues

- Motivations

- Market Trends

- Starting Point

Issues

- **E**nvironmental crisis
  - Greenhouse gas emissions
  - Global warming

- **E**conomical crisis
  - Energy demands
  - Rising cost of Kilowatt of electricity

- **E**nterprise operational crisis
  - Must find ways to increase capacity & reduce cost of operations
  - IT infrastructure maxing out power and cooling
  - Power source at capacity in many locations; no more power to sell

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Motivations

- Reduce Total Cost of Ownership (TCO)
  - Supported Information Technology equipment
  - Physical infrastructure for network rooms and data centers

- Increase Return On Investment (ROI)

- Increase productivity and improve resiliency & security
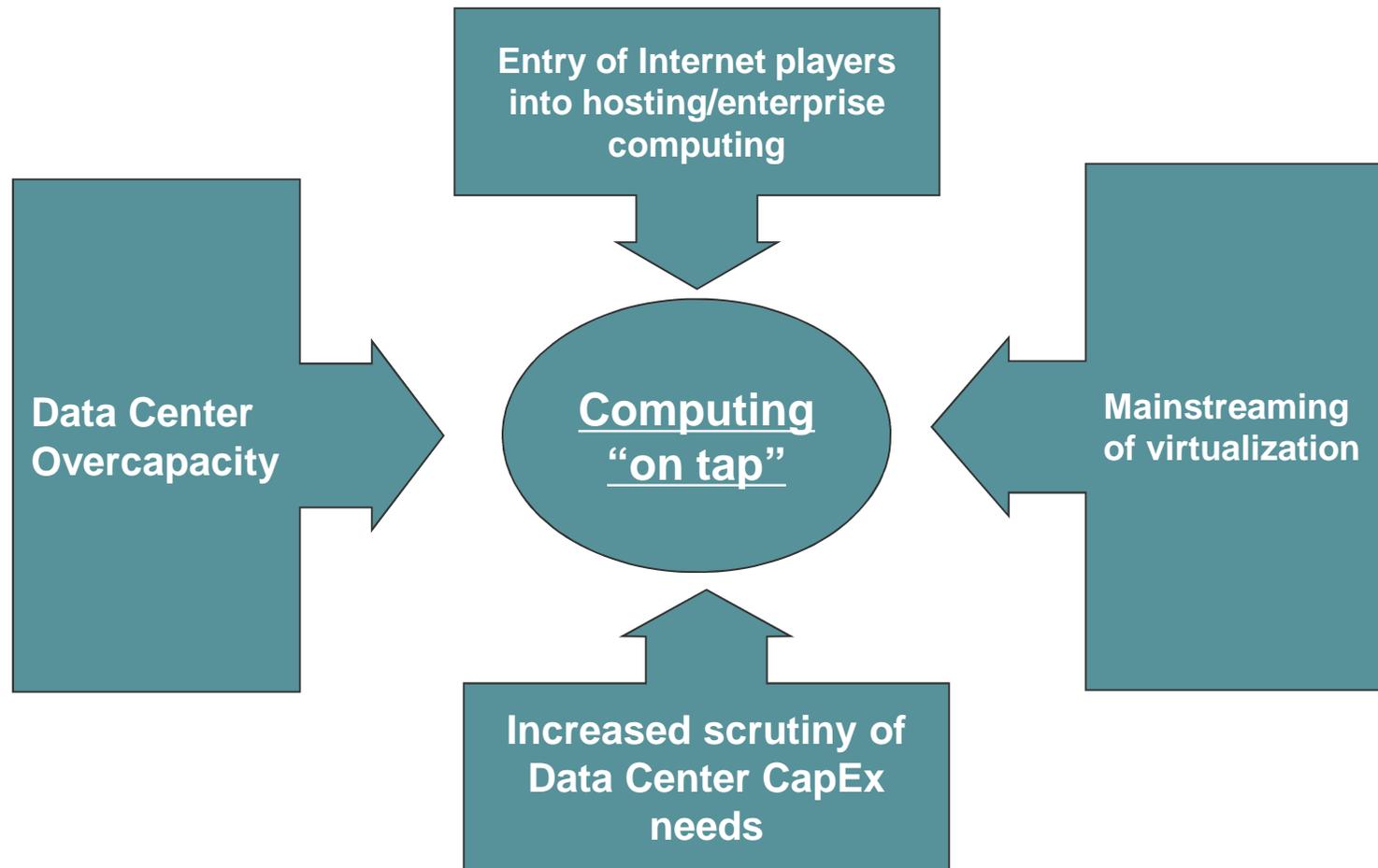
- Address corporate and governmental mandates

Why Go Green?

- Going Green can help an organization regain power and cooling capacity, increase resiliency, reduce energy consumption, and reduce operational costs and the total cost of ownership.
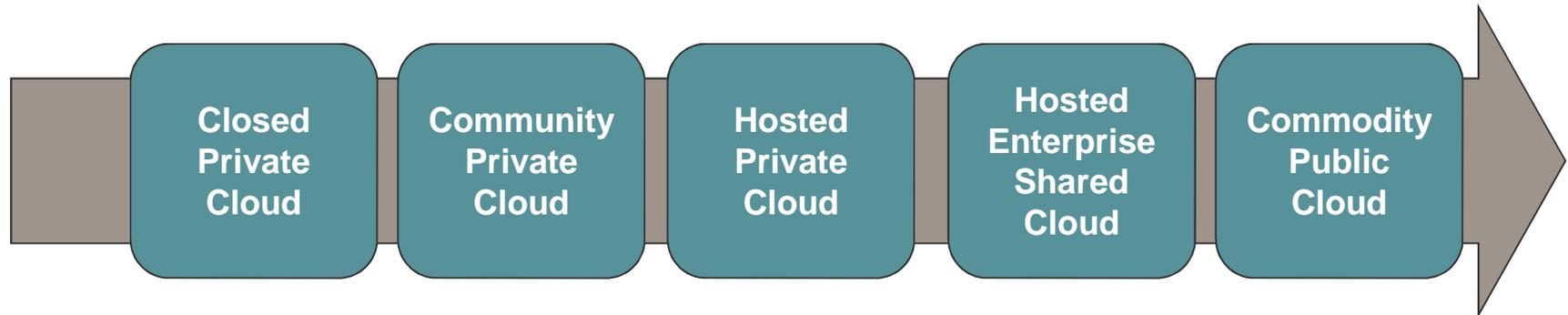

Green IT

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Drivers of Cloud/Utility Computing in the Industry

Entry of Internet players into hosting/enterprise computing

Data Center Overcapacity

Computing "on tap"

Mainstreaming of virtualization

Increased scrutiny of Data Center CapEx needs

- **Push toward virtualization due to significant under-utilization of IT infrastructure**
- **Companies want to focus on building core business rather than IT management**
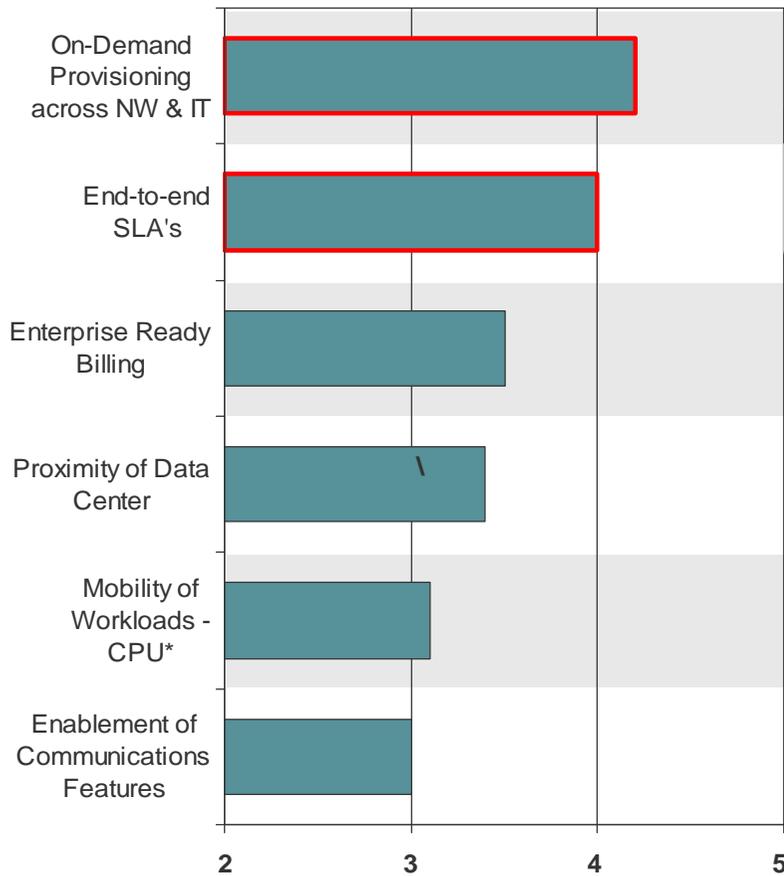
Spectrum of Cloud/Utility Computing Solutions

	Closed Private Cloud	**Community Private Cloud**	**Hosted Private Cloud**	**Hosted Enterprise Shared Cloud**	**Commodity Public Cloud**
What it is?	For use within a single enterprise	For use by a group of collaborating enterprises, including supply or demand chains	For use by a single enterprise but via a service provider	For use by a group of collaborating enterprises, but via a service provider	Publicly accessible, developer oriented shared cloud infrastructure
Who provides it?	DIY (by an enterprise)	DIY (by an enterprise)	Service Providers: Rackspace, Savvis, Terremark, IBM	Service Providers: Rackspace	Amazon EC2, Google AppEngine

Source: The 451 Group, SunGard customer research

Desired Cloud Features

Differentiation that Network / Service Provider can bring? *(Score 1-5)*

Feature	Score
On-Demand Provisioning across NW & IT	~4.2
End-to-end SLA's	~4.0
Enterprise Ready Billing	~3.5
Proximity of Data Center	~3.4
Mobility of Workloads - CPU*	~3.1
Enablement of Communications Features	~3.0

(x-axis: 2, 3, 4, 5)

On-Demand Provisioning across NW & IT

- **Decrease end-to-end deployment time** of NW & IT
  - Include NW policy, application acceleration
- Provide **bandwidth for demand-spikes**
  - Public NW: public events, disasters, campaigns…
  - Private NW: internal multi-media events, seasonal apps

"What's the point in on-demand IT, if you cannot turn up NW as well"
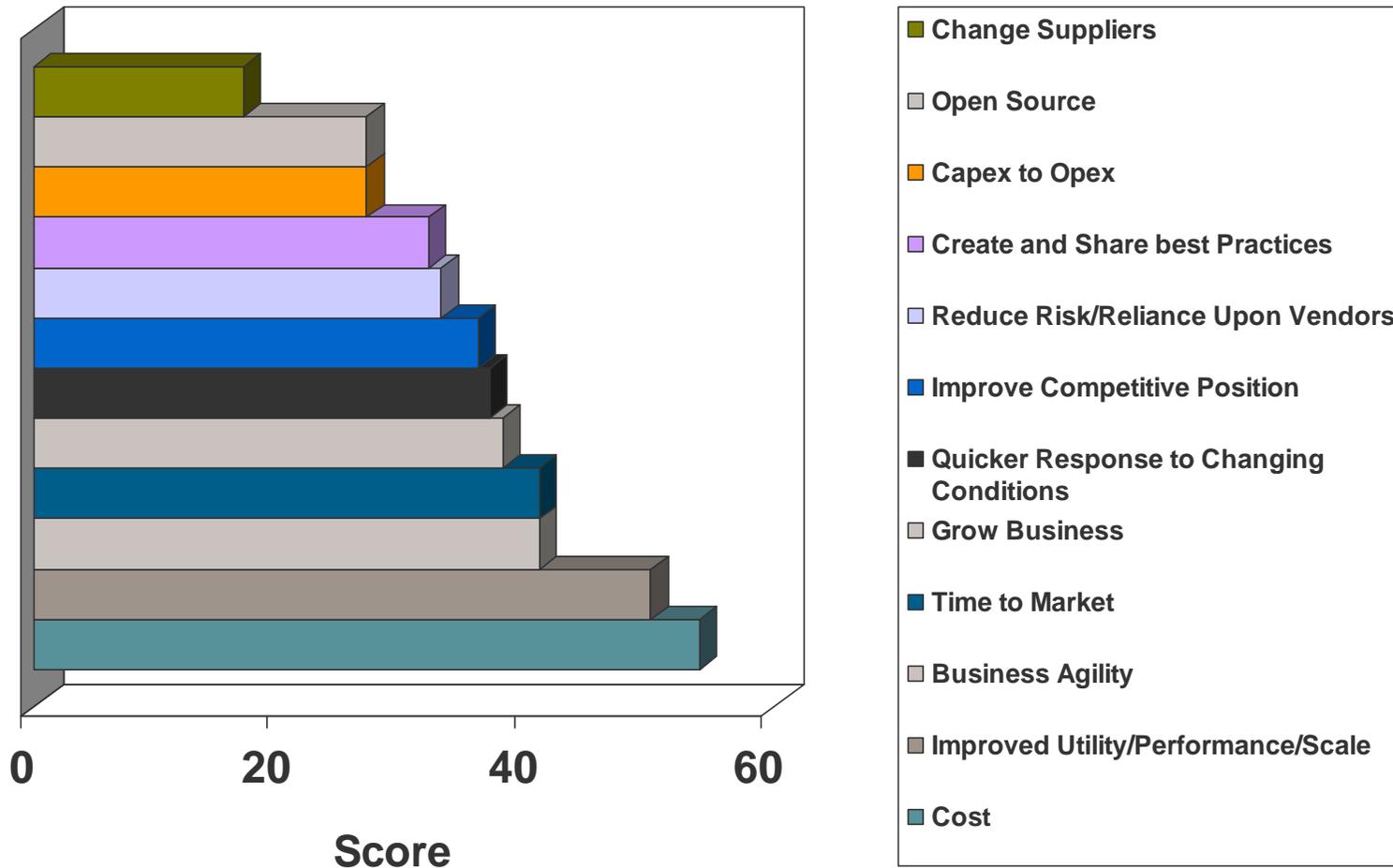 *- VP of Infrastructure and Telecommunications, Large Manufacturer*

"Right now, NW provisioning is multiple weeks. Days would already be a great improvement."
  - Head of NW Strategy, Media/ Trading

End-to-end SLAs

- 1. **Availability**; 2. **Security**; 3. **Performance**
- **Penalty clauses** in case of SLA breach
- End-to-end nature of SLA s: **"one throat to choke"**
- ⇨ Delivering SLAs **perceived to be core strength of SPs**

Source: Cisco IBSG

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Business Drivers for Cloud/Utility Computing

Legend:
- Change Suppliers
- Open Source
- Capex to Opex
- Create and Share best Practices
- Reduce Risk/Reliance Upon Vendors
- Improve Competitive Position
- Quicker Response to Changing Conditions
- Grow Business
- Time to Market
- Business Agility
- Improved Utility/Performance/Scale
- Cost

X-axis: Score (0, 20, 40, 60)

Source: Tier 1 Research

SunGard's Differentiators

- ## Resilient
  - Managed and monitored
  - Redundant and available
  - Contractual SLAs that are end-to-end

- ## Open
  - Built on industry leaders and standards
  - Explicitly infrastructure neutral (e.g., HP, Cisco)

- ## Comprehensive
  - Complete infrastructure cloud
  - Integrated with relevant SunGard Managed Services
  - Support for all application components (LB, FW)

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Cloud Computing Lifecycle

Discover

Consolidate

Cloud Computing
Lifecycle
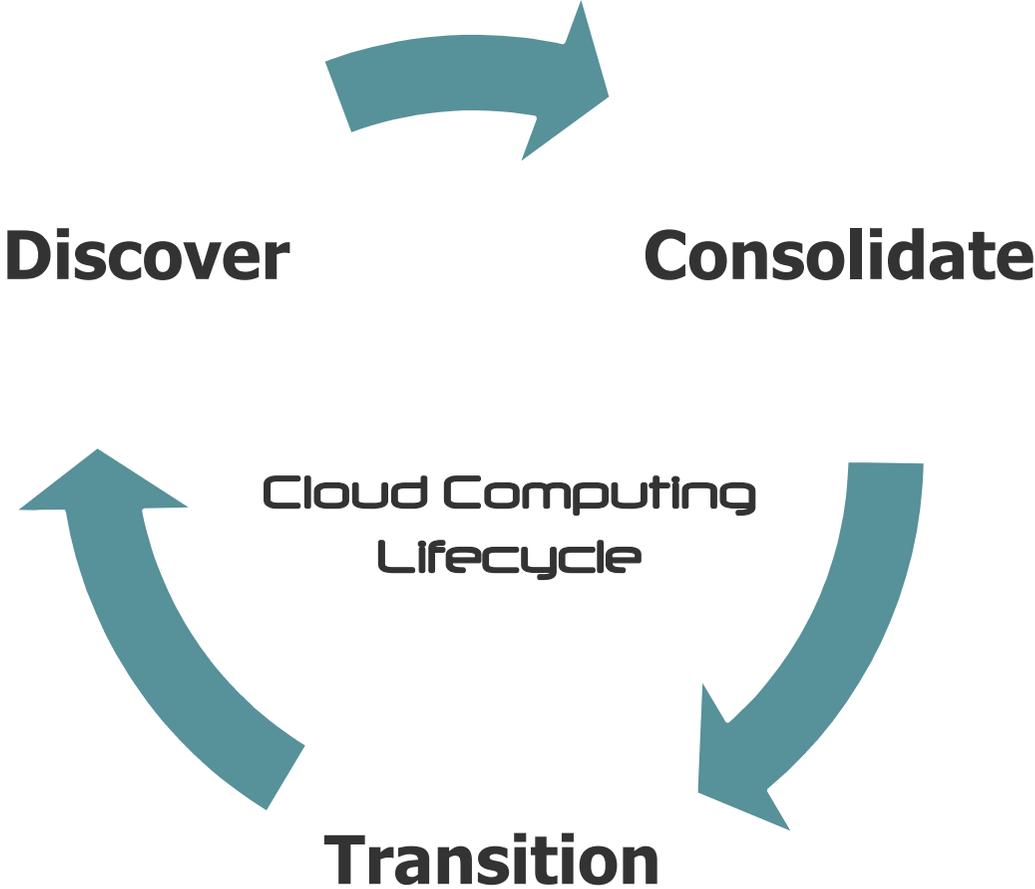
Transition

Cloud Computing Starting Point

1. Discover

- Cloud Readiness Assessment

2. Consolidate

- Cloud Design & Architecture

3. Transition

- Cloud Implementation

3 Transition
- Data Center Audit
- Facility Assessment

2 Consolidate
- Data Center Migration
- Virtualization Strategy & Design
- Consolidation Strategy & Execution

1 Discover
- Data Center Assessment
- Virtualization Assessment
- Resilient Infrastructure Analysis

Other Considerations

- Rightsizing Your Infrastructure

  - Consolidation

  - Optimization

  - Standardization

  - Negotiating Cost

  - Automation

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