Firms Are Pursuing A Variety Of Grid Related Technologies

Frank E. Gillett
Principal Analyst
Forrester Research
October 18, 2005
Firms and technology vendors are just getting started on next generation IT infrastructure.
Agenda

• What are the different ideas called grid?
• How will grid and related ideas evolve?
• What is the adoption today?
• How should firms adopt these new technologies?
Vendors are pitching new ideas:

DSI

Utility Computing

Oracle

Computer Associates

Adaptive Enterprise

business agility requires IT to adapt quickly

Automate Application Provisioning & Configuration

infrastructure solutions: on demand

Provision UNIX, Linux and Windows

Take control of your operations. Automate your datacenter.

Autonomic computing

How will you work with Sun Grid?

With Sun Grid Compute Utility, you can access computing power you need, when you need it, for $1/cpu-hr. Try it today!

Transforming the Data Center
These ideas have many names ...

- Utility computing (confusing and incomplete)
- Grid computing (has lost its specific meaning)
  » Global Grid Forum (GGF), Globus, Enterprise Grid Alliance (EGA)
- On demand — IBM, CA, and others
- Adaptive Enterprise, Utility Data Center — HP
- N1 and Grid — Sun Microsystems
- Dynamic Systems Initiative — Microsoft
- Others
  » Policy-based computing, service-centric computing, TRIOLE, Harmonious Computing, open mission-critical systems, Valumo, business blueprinting
... but are really three ideas mixed together

1. What’s the right architecture?
   - Distributed versus Organic IT
     - Choose based on ROI to firm

2. Should I outsource?
   - Location and management
     - Choose based on skills, costs, strategic focus

3. What’s the pricing scheme?
   - Purchase, lease, or pay per use
     - Choose based on financial needs
Grid is used to refer to five key elements of IT infrastructure or just one element.

- **Resource grid**: Encompasses all five key elements of IT infrastructure resources.

- **Compute grid**: An approach to sharing compute resources that builds on some capabilities of the software and management elements.

- **Data grid**: An approach to sharing data or storage resources that builds on some capabilities of the software and management elements.

- **Software**

- **Storage**

- **Network**

- **Computing**

- **Management**
Agenda

• What are the different ideas called grid?
• How will grid and related ideas evolve?
• What is the adoption today?
• How should firms adopt these new technologies?
Why is there a new architecture? Selfish assets

Software: Monolithic code

Servers: Single-purpose servers

Storage: Isolated disks

Network: Fragmented

ERP: SAP

HR: PeopleSoft

CRM: Siebel

Servers:HP, Dell, Sun

Storage: Hitachi, EMC, IBM

Network: LAN, WAN, Internet
The solution? Four innovations lead to Organic IT - shared IT infrastructure

**Software:** Modular

<table>
<thead>
<tr>
<th>ERP</th>
<th>HR</th>
<th>CRM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web services, SOA, composite apps</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Servers:** Shared

<table>
<thead>
<tr>
<th>ERP</th>
<th>HR</th>
<th>CRM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server virtualization, compute grids.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Storage:** Pooled

<table>
<thead>
<tr>
<th>ERP</th>
<th>HR</th>
<th>CRM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage virtualization, SMI-S management</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Network:** Unified

<table>
<thead>
<tr>
<th>ERP</th>
<th>HR</th>
<th>CRM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automation and virtualization</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Result? Barriers to business agility drop
Organic IT is:

- IT Infrastructure that automatically shares and manages reliable virtualized software, processors, storage, and networks across all applications and business services
Proactive management software is at the heart of Organic IT

Software
Flexible, modular code

Computing
Shared, flexible servers

Organic management
Proactive, policy-based mgmt. and automation

Storage
Pooled, networked disks

Network
Unified, flexible links
Crystallizing the savings from Organic IT

1. Massively higher utilization
   » From today’s 10%-20% to 70%-80%
   » **Result:** Cut purchases in half

2. Dramatic increases in IT labor efficiency
   » From today’s 6TB to 600TB
   » **Result:** Double IT staff efficiency

3. Rapid response to business needs
   » From months to hours or days
   » **Result:** Faster time to market
Agenda

- What are the different ideas called grid?
- How will grid and related ideas evolve?
- What is the adoption today?
- How should firms adopt these new technologies?
IT execs don’t agree on what “grid” means

“What do you think the term ‘grid’ or ‘grid computing’ means?”

<table>
<thead>
<tr>
<th>Response</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clustered computing, where several coupled servers perform as one server</td>
<td>38%</td>
</tr>
<tr>
<td>Data grids for efficient sharing of data across several different locations or systems</td>
<td>32%</td>
</tr>
<tr>
<td>Massively parallel processing of numeric workloads across several computers</td>
<td>30%</td>
</tr>
<tr>
<td>Confusing term that has several different meanings</td>
<td>20%</td>
</tr>
<tr>
<td>Same or similar to virtualization of IT resources</td>
<td>15%</td>
</tr>
<tr>
<td>Same or similar to utility computing</td>
<td>11%</td>
</tr>
<tr>
<td>Don’t know</td>
<td>15%</td>
</tr>
</tbody>
</table>

Base: 149 North American companies (multiple responses accepted)

Source: May 18, 2004, Trends “Grid Gets Big, But The Term Is Confusing”
“Compute grids” score low in use and interest today

For each of the following technologies, please indicate if you are aware of it, not aware, or already using?

<table>
<thead>
<tr>
<th></th>
<th>Already using</th>
<th>Aware</th>
<th>Not aware</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computing grids</td>
<td>5%</td>
<td>64%</td>
<td>30%</td>
</tr>
<tr>
<td>North America</td>
<td>9%</td>
<td>53%</td>
<td>30%</td>
</tr>
<tr>
<td>Europe*</td>
<td>12%</td>
<td>16%</td>
<td>72%</td>
</tr>
</tbody>
</table>

*Base: 234 infrastructure decision-makers at European enterprise

If aware, how interested are you in using...

<table>
<thead>
<tr>
<th></th>
<th>Will pilot in the next 12 months</th>
<th>Very interested</th>
<th>Somewhat interested</th>
<th>Not interested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computing grids</td>
<td>74%</td>
<td>12%</td>
<td>15%</td>
<td>10%</td>
</tr>
<tr>
<td>North America</td>
<td>74%</td>
<td>12%</td>
<td>15%</td>
<td>10%</td>
</tr>
<tr>
<td>Europe*</td>
<td>60%</td>
<td>16%</td>
<td>16%</td>
<td>12%</td>
</tr>
</tbody>
</table>

Base: 603 infrastructure decision-makers at North American enterprises

*Base: 234 infrastructure decision-makers at European enterprise

(percentages may not total 100 because of rounding)

Source: Business Technographics® July 2005 North American And European Enterprise Infrastructure And Data Center Survey
Server virtualization is tops for usage and awareness

“For each of the following technologies, please indicate if you are aware of it, not aware, or already using?”

- Already using
- Aware
- Not aware

“If aware, how interested are you in using . . .”

- Will pilot in the next 12 months
- Very interested
- Somewhat interested
- Not interested

<table>
<thead>
<tr>
<th>Region</th>
<th>Already Using</th>
<th>Aware</th>
<th>Not Aware</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>29%</td>
<td>52%</td>
<td>19%</td>
</tr>
<tr>
<td>Europe</td>
<td>24%</td>
<td>38%</td>
<td>38%</td>
</tr>
</tbody>
</table>

Base: 603 infrastructure decision-makers at North American enterprises
*Base: 234 infrastructure decision-makers at European enterprise
(percentages may not total 100 because of rounding)

Source: Business Technographics® July 2005 North American And European Enterprise Infrastructure And Data Center Survey
Consolidation is 4\textsuperscript{th} in IT’s major themes

“Which of the following initiatives are likely to be one of your IT organization’s major themes for the next 12 months?”

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Average score on a scale of 1 to 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide support for regulatory compliance like Sarbanes-Oxley or HIPPA</td>
<td>2.9</td>
</tr>
<tr>
<td>Significantly upgrade security environment</td>
<td>2.6</td>
</tr>
<tr>
<td>Upgrade business continuity capabilities</td>
<td>2.5</td>
</tr>
<tr>
<td><strong>Consolidate IT infrastructure</strong></td>
<td><strong>2.5</strong></td>
</tr>
<tr>
<td>Replace or upgrade PCs or laptops</td>
<td>2.5</td>
</tr>
<tr>
<td>Upgrade systems management capabilities</td>
<td>2.4</td>
</tr>
<tr>
<td>Adopt storage network technology</td>
<td>2.3</td>
</tr>
</tbody>
</table>

Base: 700 infrastructure and data center decision-makers at North American enterprises

(Percentages may not total 100 because of rounding)

Source: The State Of IT Infrastructure Adoption
Grid was 12\textsuperscript{th} out of 14 on this pick list

“Which of the following initiatives are likely to be one of your IT organization’s major themes for the next 12 months?”

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Average score on a scale of 1 to 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implement wireless network infrastructure</td>
<td>2.2</td>
</tr>
<tr>
<td>Upgrade Windows desktop operating system</td>
<td>2.1</td>
</tr>
<tr>
<td>Look seriously at adopting RFID technology</td>
<td>1.7</td>
</tr>
<tr>
<td>Look seriously at IT infrastructure management outsourcing</td>
<td>1.6</td>
</tr>
<tr>
<td><strong>Implement grid or utility computing architectures</strong></td>
<td>1.6</td>
</tr>
<tr>
<td>Move from a Unix/RISC or mainframe system to an x86-based architecture</td>
<td>1.5</td>
</tr>
<tr>
<td>Move IT management or maintenance activities offshore</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Base: 700 infrastructure and data center decision-makers at North American enterprises

(percentages may not total 100 because of rounding)

Source: The State Of IT Infrastructure Adoption
Agenda

• What are the different ideas called grid?
• How will grid and related ideas evolve?
• What is the adoption today?
• How should firms adopt these new technologies?
Four technologies lead the way for Organic IT

- Web services and services oriented architecture
- x86 server virtualization
- Data center automation
- Compute grid
Server virtualization and automation go together

• Virtualizing helps firms cut hardware costs - but more is needed
  » it doesn’t tackle OS management costs
  » it doesn’t provide workload management across server boxes

• Forrester advises firms to use automation to increase productivity and flexibility - of people and gear
  » Start with automated patch and configuration management
  » Plan a migration path to policy-based automation

• See Forrester client reports:
  » May 18, 2004 Quick Take “Automating Server Management”
  » September 29, 2004 Quick Take “EMC’s VMware VirtualCenter Leads To A Data Center Automation Strategy — For Firms And EMC”
Recommendations

• Validate “delay of game” words to get clarity
• Make a measured migration to Organic IT
• Start by focusing on four emerging technologies
• Focus equally on organizational and technology issues - it will take more than best practices
Thank you

Frank E. Gillett
+1 617/613-6017
fgillett@forrester.com

www.forrester.com
Selected bibliography

- October 17, 2005 Data Overview “The State Of Infrastructure Adoption”
- October 17, 2005 Trends “Which Industries Are Using Compute Grids?”
- August 18, 2005, Trends “Organic IT Challenges IT Organizational Practices”
- January 20, 2005, Market Overview “Decoding Grid Technology”
- May 18, 2004, Trends “Grid Gets Big, But The Term Is Confusing”