On-Demand Computing using Network.com

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Network.com
Utility based Infrastructure and Application Services

- Enhanced Developer Productivity
  > Use, Build and Share Applications
- Easy access to Compute power
  > Predictable cost $1/CPU-hr
- Click and Run Applications
- Choose from published applications
  > Commercial applications
  > Open Source applications
- Simple online signup
  > No contract required
Customer Choice

On-demand Infrastructure

Sun Grid Compute Utility @ Network.com

Bring your own applications to Sun Grid Compute Utility

Powerful compute resource for the enterprise

On-demand Applications

Network.com Application Catalog

Use ISV applications published on Network.com

Immediate access to on-demand HPC applications
Sun Grid

Easy, Secure, Affordable, Powerful

- Reliable
- Scalable
- Multi-source
- Multi-tenancy
- Predictable pricing
- Metered pricing
- Standard Infrastructure

Network.com

Technical Complexity Managed by Sun and Hidden from View
Provides Simple Plug-and-Play Experience for End Users
Network.com Application Catalog

Job Catalog

- Allow users to search and check out applications that have been shared via “Job Template” mechanism
- Easy search mechanism for applications

Digital Entitlement Tokens (DET)

- Allows publishers to protect their software via fine-grained access controls
- Publishers may elect to require use of Digital Entitlement Tokens to run their software
- End users can easily acquire tokens via website link in the catalog
- Use readily available X.509 certificates and signed jar files that simplify creating, maintaining, and using the application
Application Catalog
On-Demand Delivery of ISV Applications

- Catalog of ISV and open source applications
- Same price for compute: $1/CPU-hr
- Simple license mechanism
- No long term contract required
- Search by company, application, product version, category, and sub-category
Use a Growing List of Applications

Life Sciences
- EHITS - SimBio Sys
- Rational Numbers – MathSpec
- Gromacs
- Readseq
- T-Coffee
- GlimmerM
- Glimmer
- GlimmerHMM
- FastDNAml
- BLAST
- ClustalW

Computer Aided Engineering
- FDS
- Blender
- ElmerSolver_mpi
- IMPACT – Dynamic Finite Element Solver
- OFELI
- deal.II
- R-Project

Energy & Other
- E3D
- namd
- Calculix
- FreeFEM
Network.com New Feature

Internet Access:
Sun Grid Internet Access allows applications open outbound TCP connections to any accessible internet host.

International Access:
Sun Grid Compute Utility is now accessible by users from 25 countries.

Application Programming Interface (APIs):
A Java API allowing programatic access to Job submission and data transfer facilities (in limited beta)
Outbound Connections

External Systems

Task Queries

Internet

Sun Grid Compute Utility

M Master task for job with Internet Access

W Worker tasks executing on nodes
Inbound Connections

- **External Clients**
- **External Access Point**
- **Internet**

**Sun Grid Compute Utility**

- **R** External access point (dispatches client requests)
- **AC** Application clients
- **J** Job that establishes reverse tunnel and creates master
- **M** Master task that creates workers
- **W** Workers (service providers) executing on nodes
Sun Grid User Benefits

Improved Utilization of Resources

- Sun Grid can be tapped for compute power to handle peak capacity
- Flexible capacity facilitates better utilization of existing IT infrastructure
- Frees up budget for strategic business initiatives and IT investments
- Bottom line impact; expedite results when it counts
- Enables enterprises to react quickly to emerging business opportunities and needs

“70-80% of processing power often sits idle” - Insight: Grid Computing A Vertical Market Perspective 2005-201
SORMA - Self-Organizing ICT Resource Management

- Funded by EU IST under 6th Framework Programme
- Develop an “Open Grid Market” platform that allows dynamic trading of ICT resources on demand
- Consumers and providers do trading over computational resources
- Efficient allocation - resources are allocated to those who need them most
- Different market models
  > Auctions
  > Pay-as-bid
RESERVOIR
Resources and Services Virtualization without Barriers

- Aim to provide cloud-computing-based technologies that will enable the borderless delivery of IT services
- Deployment and management of IT services across different administrative domains, IT platforms and geographies
- Automate the fluctuating demand for IT resources in a cloud computing environment
- Developing new virtualization and grid technologies
Thank you!

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