



NATIONAL GRID

The Grid Middleware for Your Business

N*Grid M/W 3.0

@GridWorld2006 Japan

Content

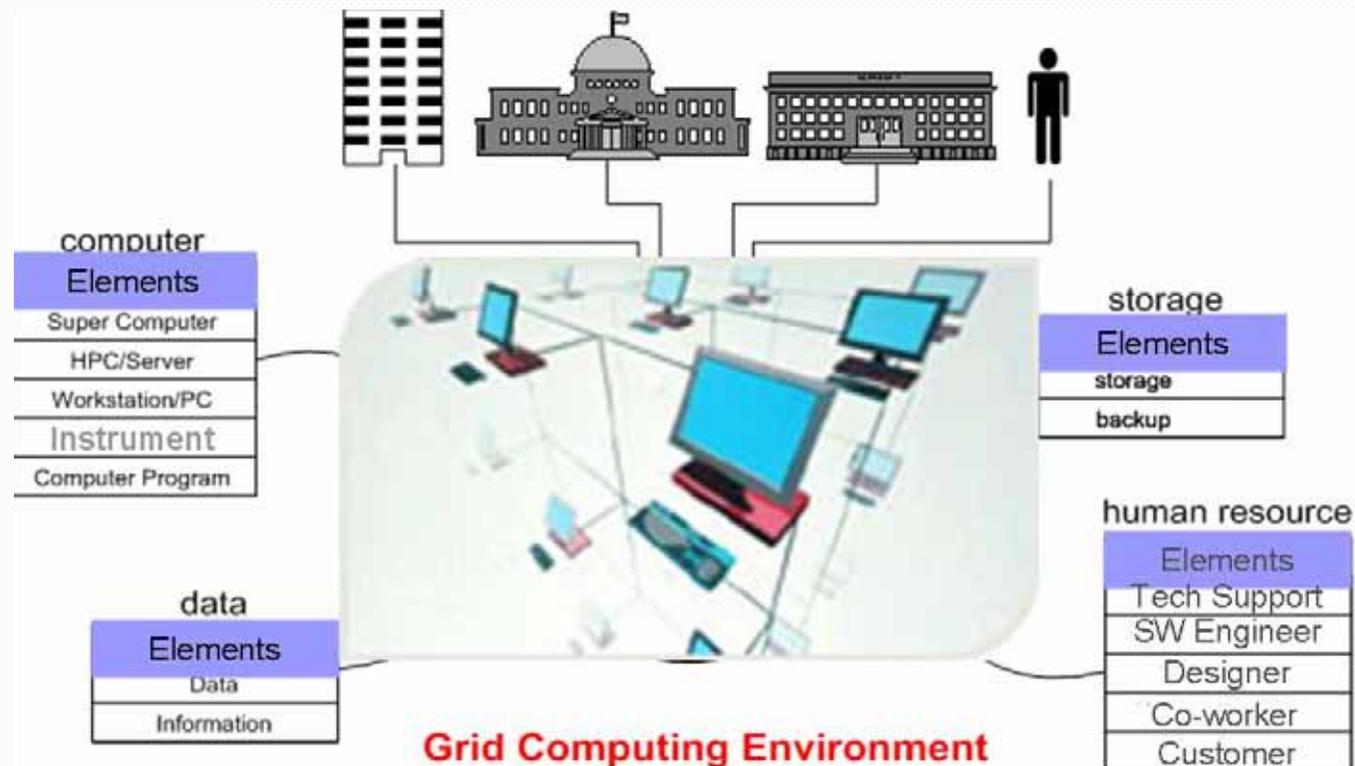
1. COMPANY INTRODUCTION
2. N*Grid M/W 3.0

1.1 Company Overview

● Company	National Grid, Inc.
● Registry No.	049-21-0955511
● CEO	Kihwan Kim
● Employee	15 (R&D 8)
● Business	N*Grid Middleware licensing Grid Computing Power Service Grid Computing Consulting
● Address	3F, Chungnok Bldg., 721-29, Yeoksamdong, Kangnamgu, Seoul, Korea(135-920)
● Established	13, May, 2003
● Etc.	New Technology company (Certificated by Ministry of Finance and Economy) Venture Certification (Certificated by Small and Medium Business Administration) New Excellent Product (Certificated by Ministry of Commerce, Ind. & Energy) Grid R&D center (Certificated by Ministry of Science)

1.2 The Concept of Grid

- Grid computing enables the virtualization of distributed computing and data resources such as processing, network bandwidth and storage capacity to create a single system image, granting users and applications seamless access to vast IT capabilities.



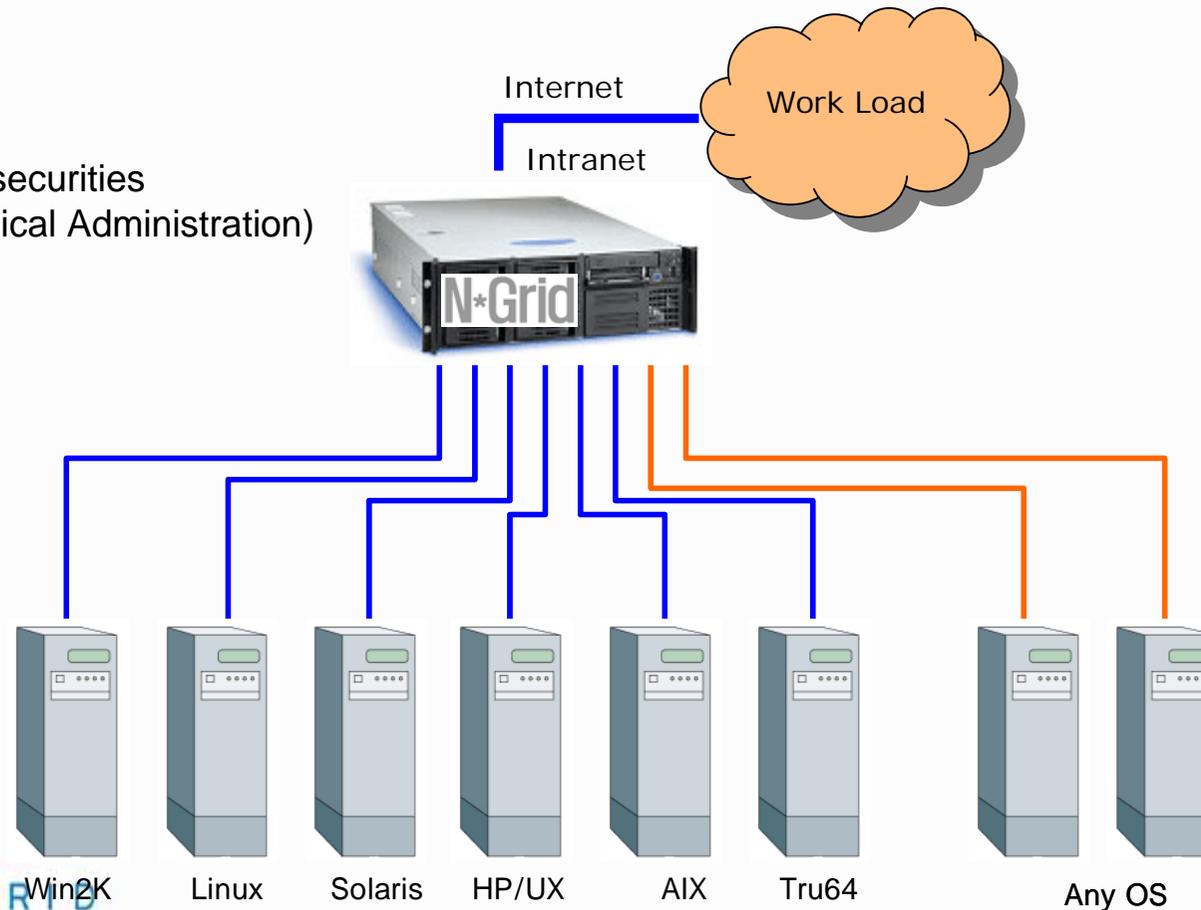
1.3 Why Grid Computing

Efficiency	Utilizing existing super computer, cluster, and/or server pool, it runs various services on a non-restricted number of computers in a network. Partial HW or NW failure does not affect the entire system, and thus does not affect on job execution.
Scalability	IT budget gets limited even in various computing environments caused by company expansion, M&A, and cooperation between companies. The grid environment is the ultimate solution for the ever changing business environment: it offers platform independency, ease of system expansion, and shared computing resources over multi applications.
Dynamic	Many application vendors are shifting to fit dynamic computing environment in order to fulfill the customer needs and job requests. As data gets more massive and algorithms get more complicated, computer jobs demand more power which means money and cost to the customer.

1.4 Business Area

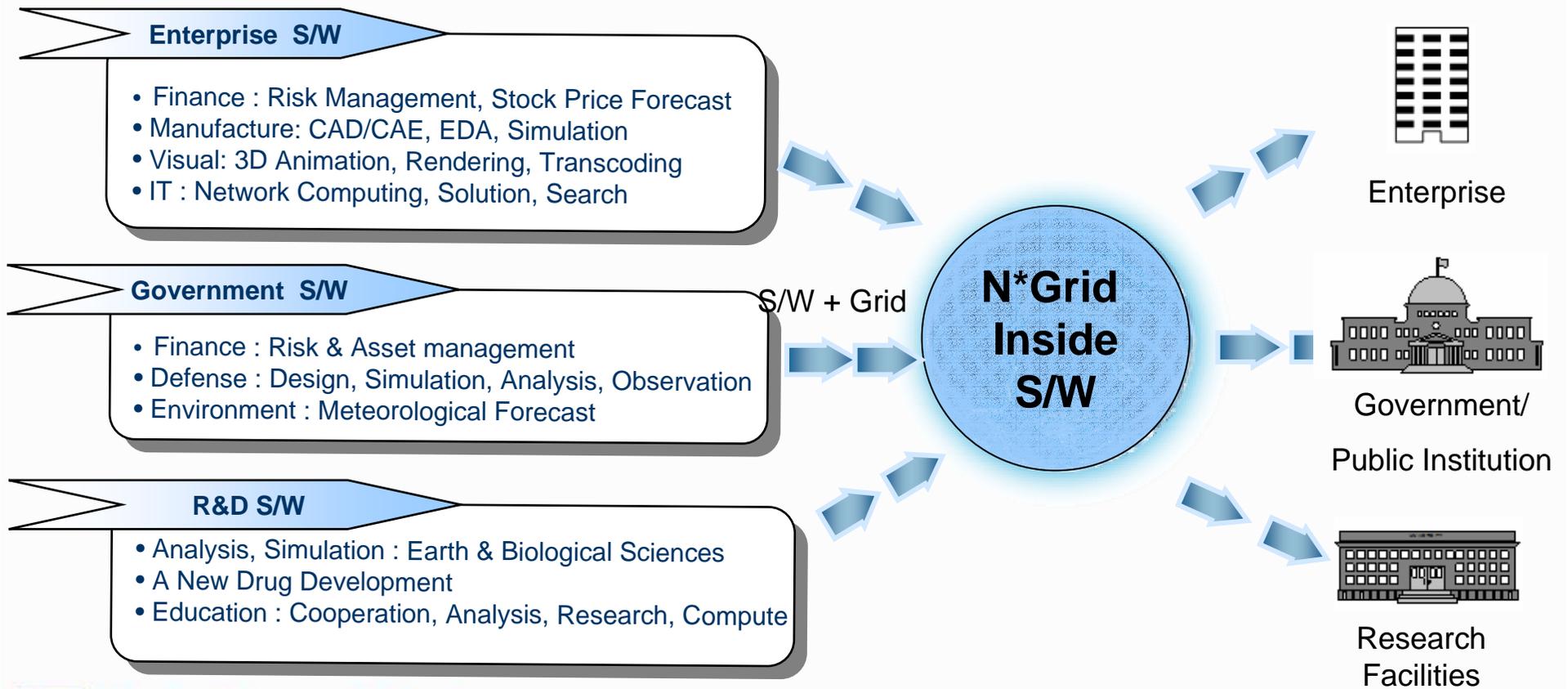
The “Pay per CPU” grid-based licensing business for enterprise such as finance, education, government, distribution, manufacturing, IT, and R&D sectors.

- Good morning shinhan securities
- KMA (Korea Meteorological Administration)
- Kyobo book store
- Macrozen DNA analysis



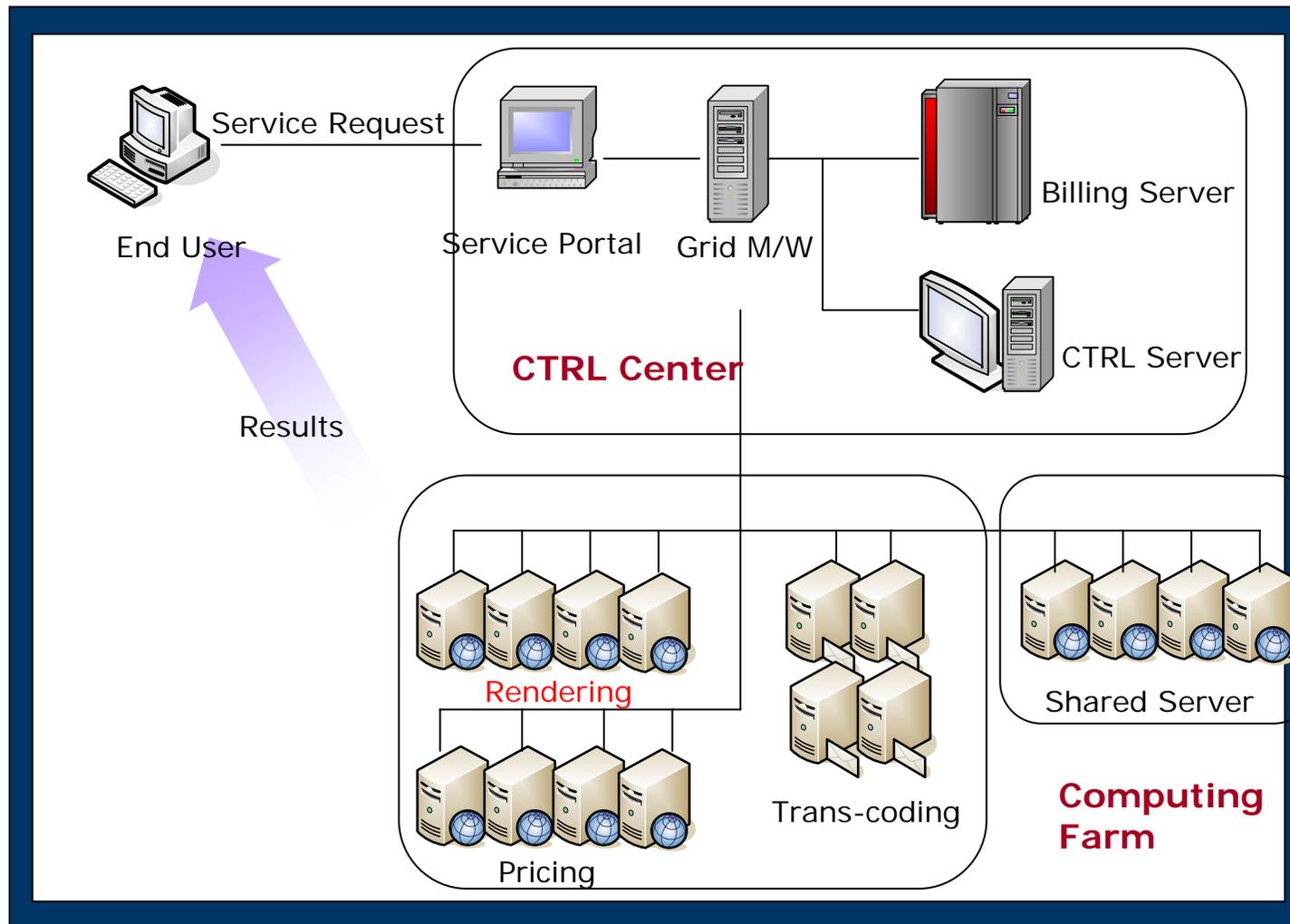
1.4 Business Area

“Pay per S/W” : Grid-enabled S/W with Market Leading ISV



1.4 Business Area

In a computing farm built on grids, customers use computing power, application, and business process as much as they want and whenever they need.



Grid Benefits

The service platform provides the easy-to-use interface, and the system guarantees full utilization of computing resources for a given job.

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2.1 N*Grid M/W Features and Advantages

N*Grid M/W 3.0 is the grid middleware which recognizes computing resources through the network and makes them available for massive computing operations

Features

- System Management
- Resource Management
- Application Management
- Security
- Job Management
- Data Management

Advantages

- Designed and developed by grid experts of National Grid Inc.
- Platform Independency
- Plug-in type application installation
- Automated job re-direction when HW or NW failure occurs
- Easy integration with various applications
- WSRF supported

2.2 System Requirement

Composition

Broker : the Grid Server that manages resources and jobs

Worker: the job node that executes jobs and returns the results

OS supported

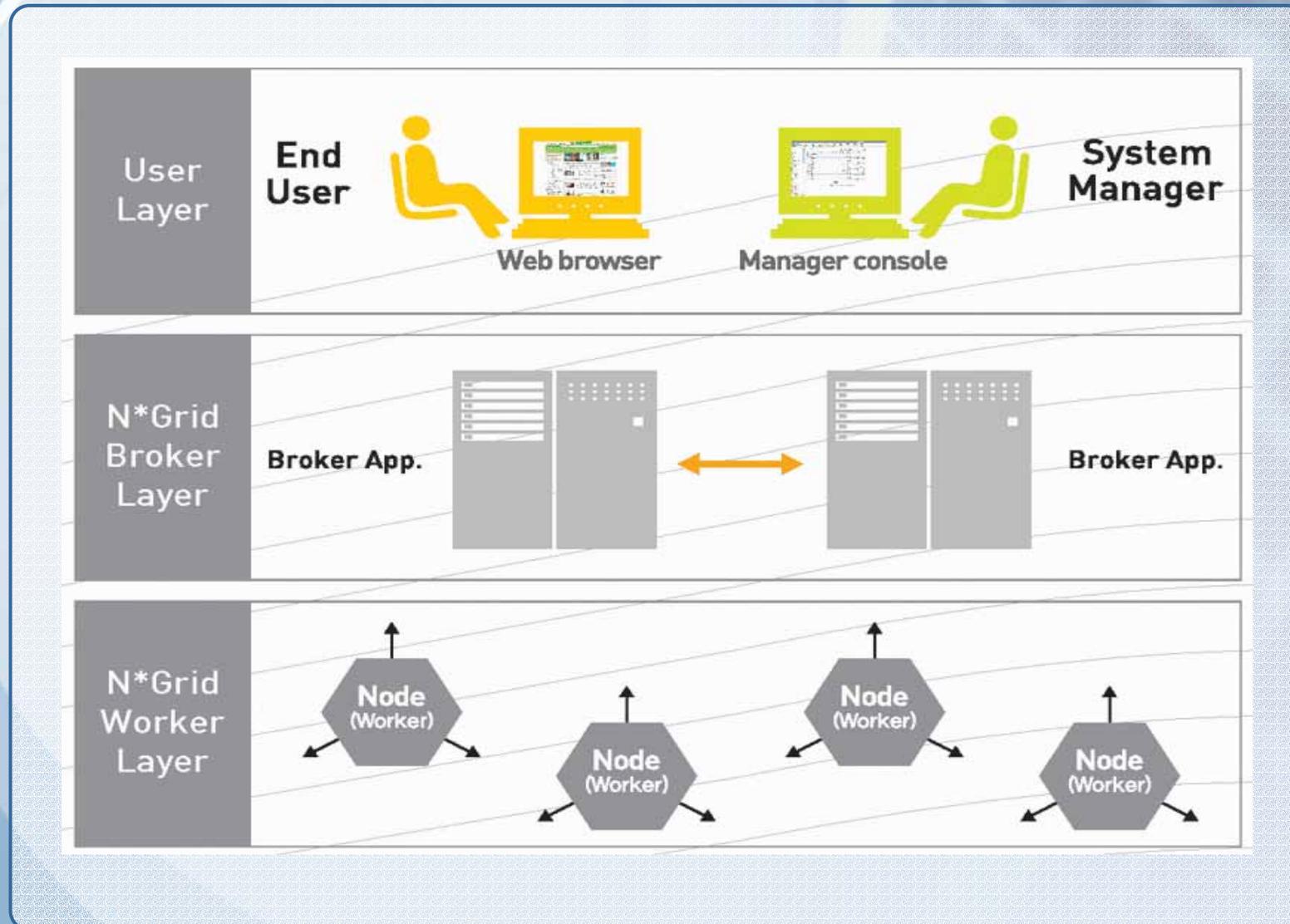
Windows 2000 / Windows XP / Windows 2003 Server

Linux kernel 2.6 +

Solaris 9 +

Others

2.3 System Architecture : Service Layer

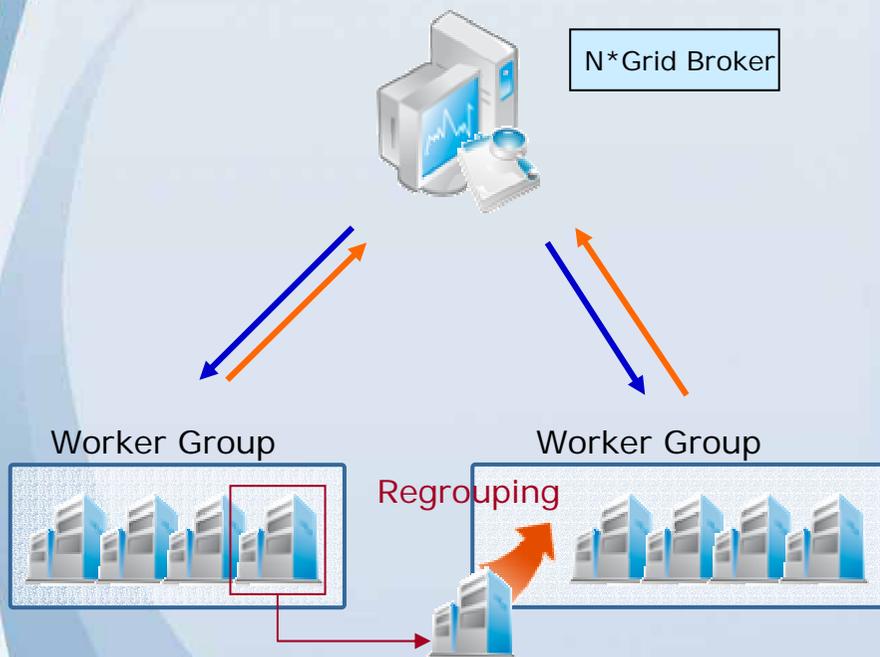


2.3 System Architecture : Broker and Worker Layer



2.4 N*Grid M/W 3.0 Feature : Resource Management

Each and every computing resources are effectively managed and ready to be fully utilized when required



■ Basic Information

Modify			
Group Name	Shared Group	Created On	2006/04/28 19:55
Application	Any Application		
Description	Shared Group for All resource		

■ Resource List

Isolated resources are displayed in Red and are not subject to use. ACTIVE IDLE OFFLINE

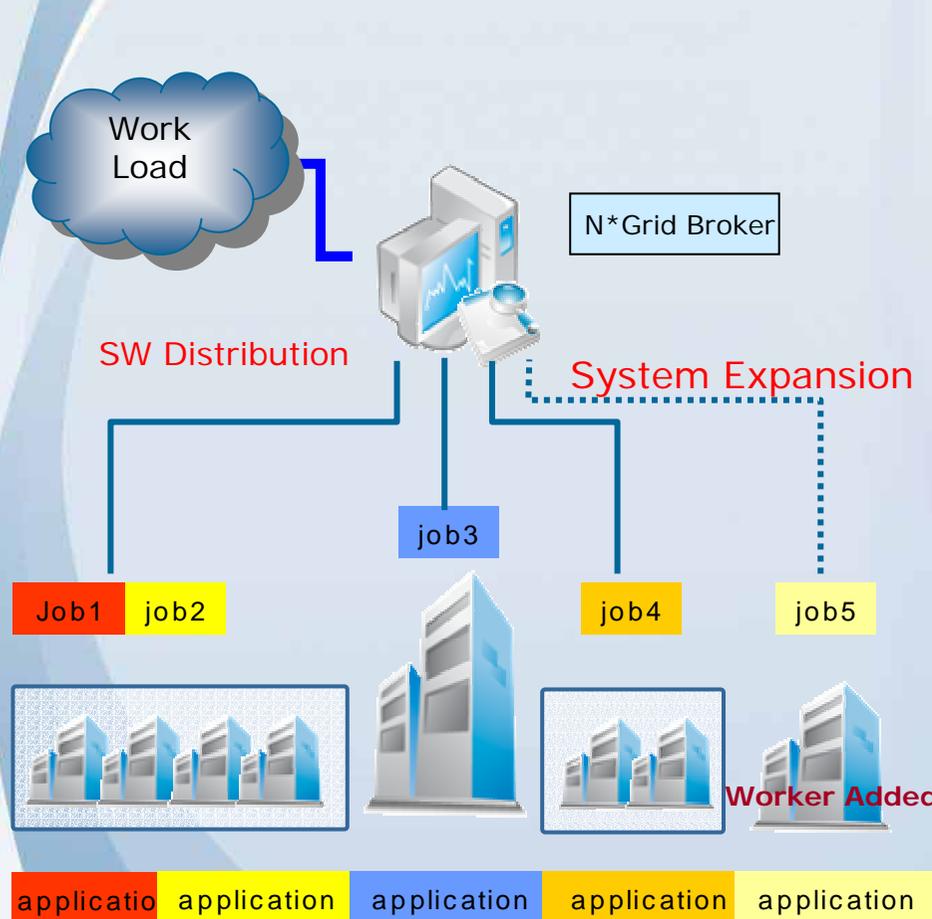
== Select Group ==									Move	Delete
All	Name	CPU	CPU Speed	MFLOPS	RAM(MB)	HDD(GB)	Platform	View		
<input type="checkbox"/>	Xeon	1 pcs	3.39GHz	275	1.98GB	38.75GB	Linux 2.6.14-1.1656_FC4			
<input type="checkbox"/>	henry	1 pcs	2.99GHz	453	1015.43MB	51.39GB	Windows XP 5.1	Details		
<input type="checkbox"/>	rath	1 pcs	2.99GHz	443	1015.46MB	80.00GB	Windows 2003 5.2	Details		
<input type="checkbox"/>	N*Grid 203	1 pcs	2.67GHz	222	223.48MB	19.53GB	Windows XP 5.1			

Resource MGMT

- Group management of computing resources
- Applications share a system
- System built NOT based on peak-time capacity
- Easy grouping and regrouping of resources
- Auto allocation of non-defined resource group

2.4 N*Grid M/W 3.0 Feature : Application Management

Centralized application management for N*Grid M/W and its applied programs

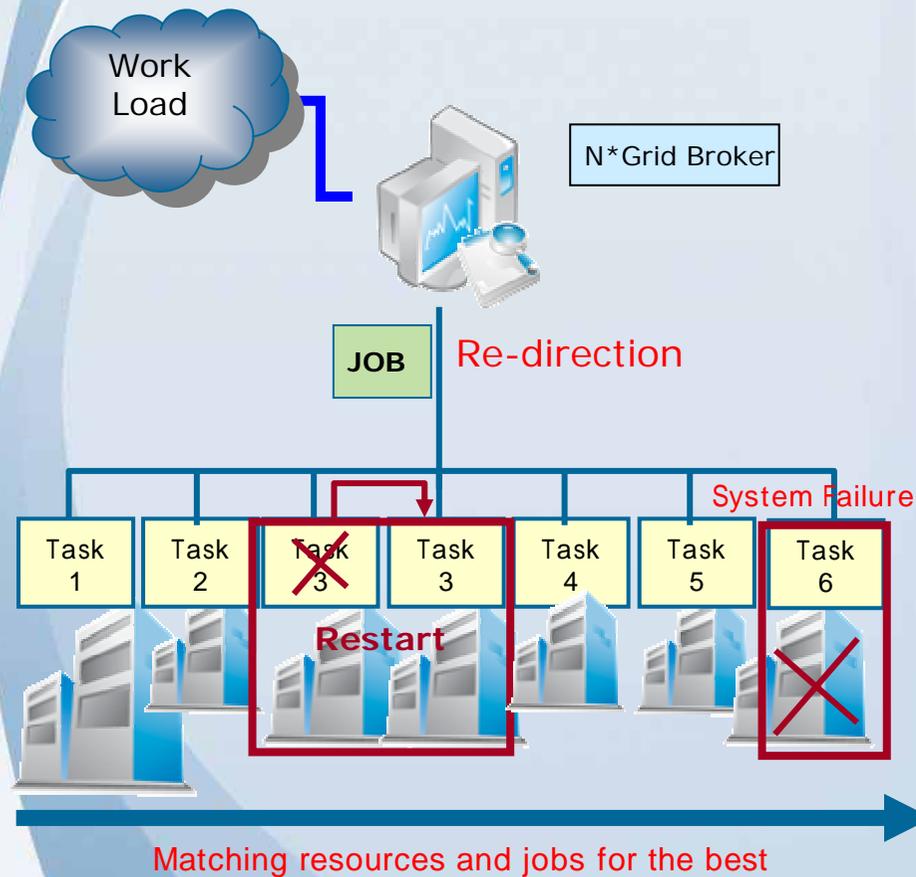


Application MGMT

- Unified application management
- SW distribution, installation, and execution
- Automated SW update

2.4 N*Grid M/W 3.0 Feature : Job Management

Monitoring and managing job status including jobs on hold, on processing, or finished



To submit a new jobs, choose Application OS, and Maximum number of resources and press **Submit**

Application: Select OS:

Maximum number of resources:

* total 26 jobs submitted

Jobs on standby (21 Jobs , 80% jobs on standby)							Job Order	Up	Down
Name	Application	Platform	Task	Owner	Dats	Priority			
<input type="checkbox"/> <input type="checkbox"/> OTC Valuation [4]	ngnid/utl/otc	Windows	4	zongheony	2006-05-02 13:26:47				Cancel
<input type="checkbox"/> <input type="checkbox"/> OTC Valuation [5]	ngnid/utl/otc	Windows	4	zongheony	2006-05-02 13:26:47				Cancel

Jobs on the progress (5 Jobs , progressing 19% jobs)						
Name	Application	Owner	Completed Task	Date		
<input type="checkbox"/> MP3Converter 1146538643015	com/ngrid/app/mp3converter	admin	11/12 (91%)	2006-05-02 12:00:50	X	
<input type="checkbox"/> OTC Valuation [2]	ngnid/utl/otc	zongheony	3/4 (75%)	2006-05-02 13:26:47	X	
<input type="checkbox"/> OTC Valuation [3]	ngnid/utl/otc	zongheony	2/4 (50%)	2006-05-02 13:26:47	X	

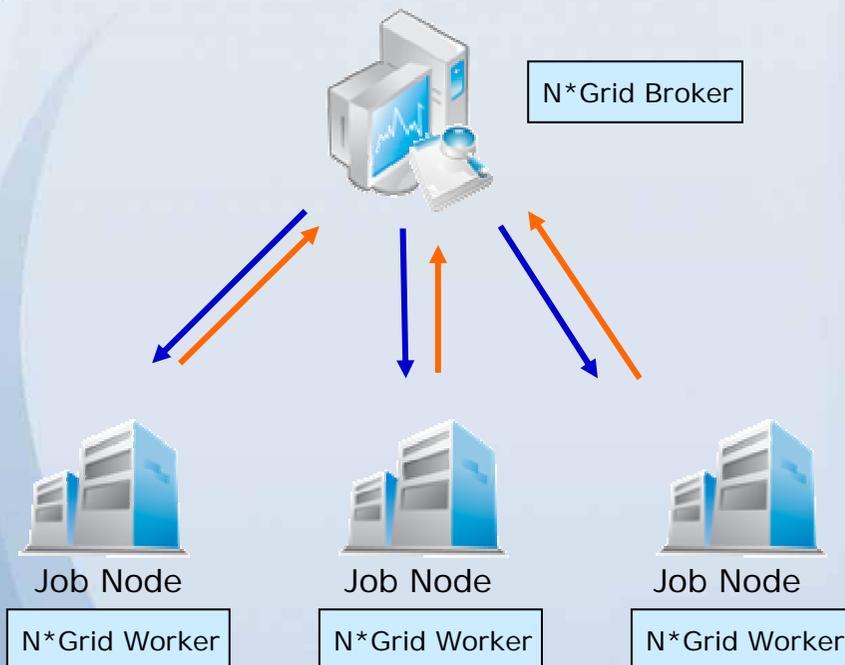
Jobs completed (2 Jobs , 7% Jobs completed)						
Name	Application	Owner	Completed Task	Date	Run Time	
<input type="checkbox"/> OTC Valuation [1]	ngnid/utl/otc	zongheony	4/4 (100%)	2006-05-02 13:26:46	41 sec	
<input type="checkbox"/> MP3Converter 1146535963187	com/ngrid/app/mp3converter	admin	0/0 (100%)	2006-05-02 11:16:18	73 sec	

Job MGMT

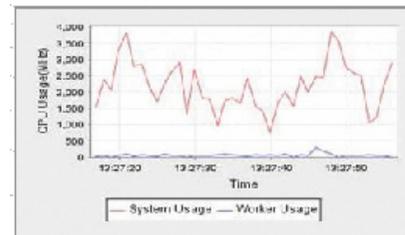
- Targeting best computing resources available
- Matching jobs with best resources to run on
- Job priority change and redirection
- Auto job redirection when system fails

2.4 N*Grid M/W 3.0 Feature : System Management

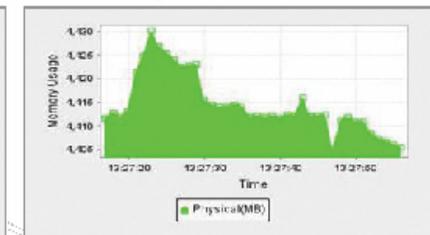
Unified system management is available with all information of local and remote resources delivered from Worker to Broker



■ CPU Usage



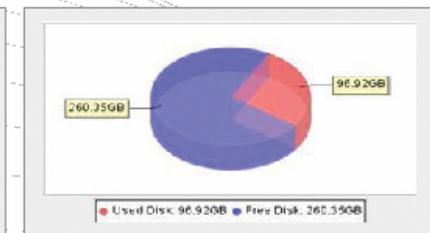
■ RAM Usage



■ Network Usage



■ Disk Usage

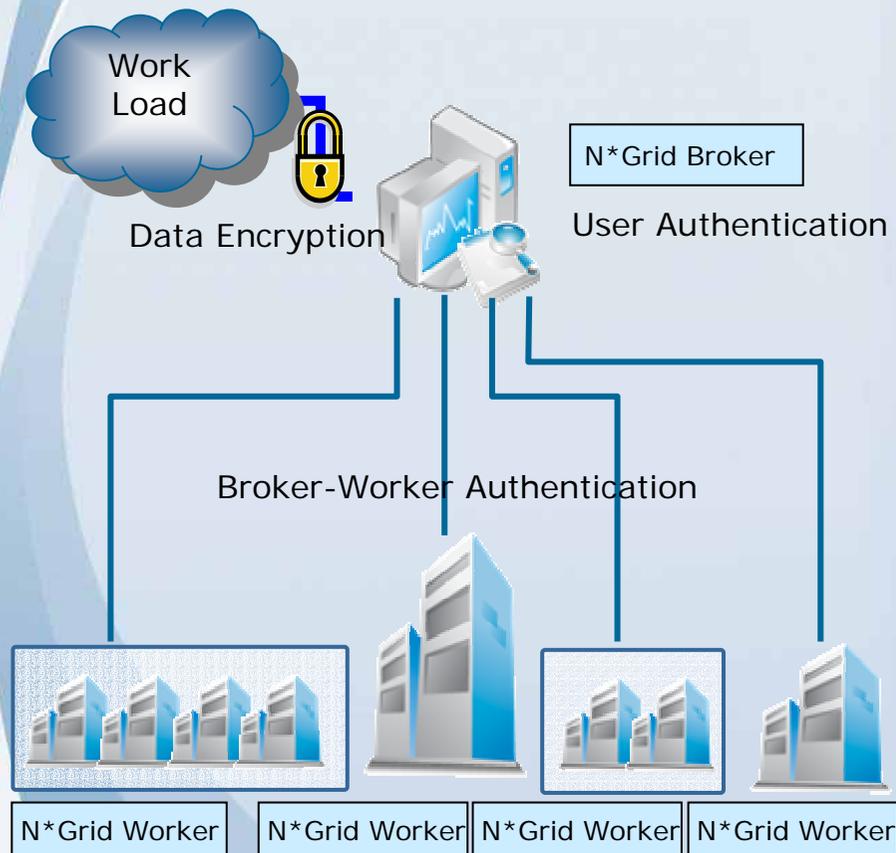


System MGMT

- Monitoring current system usage
- Blocking particular resources
- Error recovery
 - 1) Alarms to an admin
 - 2) Auto recovery
 - 3) High availability
- Collected information delivered to Broker

2.4 N*Grid M/W 3.0 Feature : Security

Data security to prevent non-authorized personnel from getting access



■ Crypt Algorithm for Worker

To apply a new algorithm, choose one from the dropdown box and press **Apply**.
 (The new setting will be applied to the workers upon job completion.)
 You are using **None**.

Auto select	Crypt Algorithm	Private Key	
<input type="checkbox"/>	Blowfish		Apply

■ User Crypt Algorithm

To apply a new algorithm, choose one from the dropdown box and press **Apply**.
 (The new setting will be applied to the users upon job completion.)
 You are using **None**.

Auto select	Crypt Algorithm	Private Key	
<input checked="" type="checkbox"/>	DES		Apply

Security

- Data encryption
- User and system authentication
 - AES, Blowfish, DESede, or DES
 - Administrator or user authentication
 - Authentication btw Broker and Worker

Thank You

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