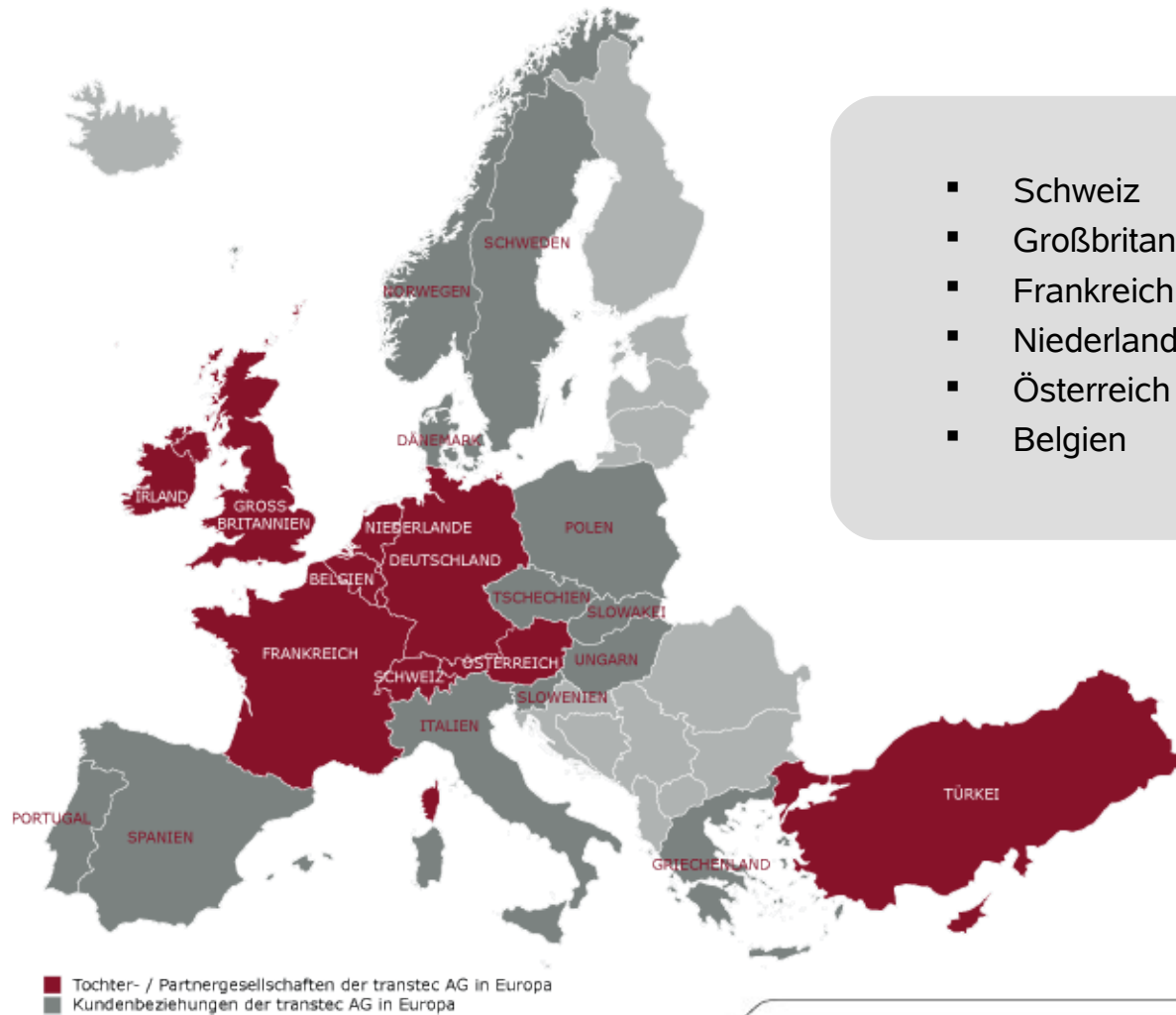


transtec and Windows CCS

Michael Linke Presales Consultant

transtec

transtec AG - Locations



- Schweiz 1985
- Großbritannien 1991
- Frankreich 1993
- Niederlande 1996
- Österreich 1996
- Belgien 1999

The Competence Center

- Business unit founded in 2002
- Complex it-solutions based on transtec hardware
- about 15 engineers that cover nearly all topics of modern it-business

Services around complex it-solutions

Three core topics:

Virtualization

- XEN
- VMWare

Storage

- NAS-Systeme
- SAN-Storage
- Storagevirtualisation

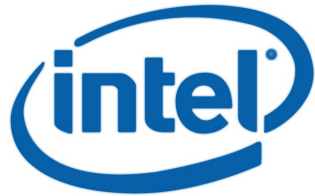
Cluster

- HA-Cluster
- HPC-Cluster

transtec HPC Clustering

- Started with Clustering in 2000
- Clusters from four up to more than 200 nodes
- More that 300 installed systems all over europe
- Based on Linux and Microsoft Operating Systems

transtec HPC Clustering – Technology partners





HPC goes mainstream

 Microsoft
**Windows
Compute Cluster Server 2003**

transtec MS ComputeCluster Server

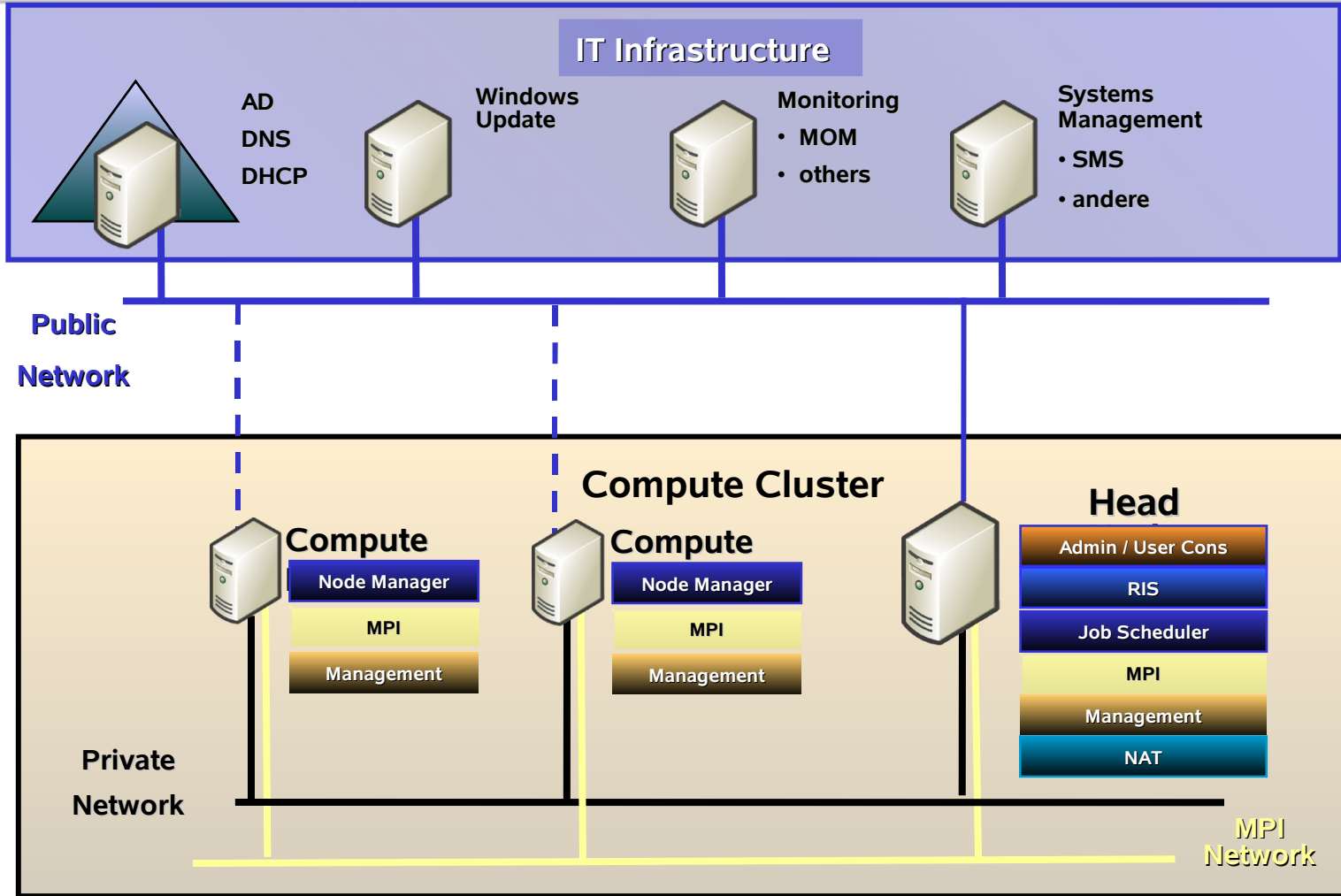
Windows Compute Cluster Server 2003 contains:

- Windows Server 2003 – Compute Cluster Edition
 - Support for high performance Hardware (x64 Bit architecture)
 - Support for high performance interconnects (Infiniband, Myrinet)
- Compute Cluster Pack
 - MPICH2
 - Job Scheduler
 - Cluster Resource Management Tools

installation and management

transtec

Compute Cluster Topology



Management Features

Head Node Installation

- Operating
 - Windows 2003 Compute Cluster Edition
 - Windows 2003 SP1 Standard & Enterprise x64
 - Windows 2003 R2 x64
- Compute Cluster Pack (with SP1)

Integration with existing infrastructure

- Uses Active Directory and Windows security
- Integration with MS Management Technologies (MOM, SMS... usw.)

Simplified administration and node-installation

- Different ways to install compute nodes (RIS, CD, CLI)
- GUI and CLI for Node management
- Monitoring with Perfmon, MOM or managementtools of other suppliers

Compute Cluster Monitoring

Queue Monitoring

- Number of Jobs in the Queue (and their status)
- Number of Tasks in the Queue
- Number of Tasks in the Queue

Node-Monitoring

- Number of nodes
- Nodes with certain status
- Number of CPUs
- Number of used CPUs

OS-performancecounter (CPU, Memory, Disk, Network usw.)

Admin Console (Start page)

The screenshot displays the 'Compute Cluster Administrator' application window. The main content area is titled 'Start Page (Local)' and provides an overview of the cluster's current state. It includes sections for cluster status, node management, and job submission.

Status of cluster (Last refreshed: 1/11/2006 1:51:24 PM)

Compute Nodes and Processors:

OK nodes:	0	Processors in use:	0
Paused nodes:	2	Idle processors:	3
Unreachable nodes:	0	Total processors:	3
Pending for approval nodes:	0		
Total nodes:	2		

[Open Node Management](#)

Compute Jobs:

Running jobs:	0	Failed jobs:	0
Pending jobs:	0	Cancelled jobs:	0
Total jobs in queue:	0	Finished jobs:	0

[Open Job Submission and Monitoring Console](#)

To do list

To do list allows you to configure networks, configure Remote Installation Services (RIS), add or remove compute nodes and manage cluster users and administrators.

[Open To Do List](#)

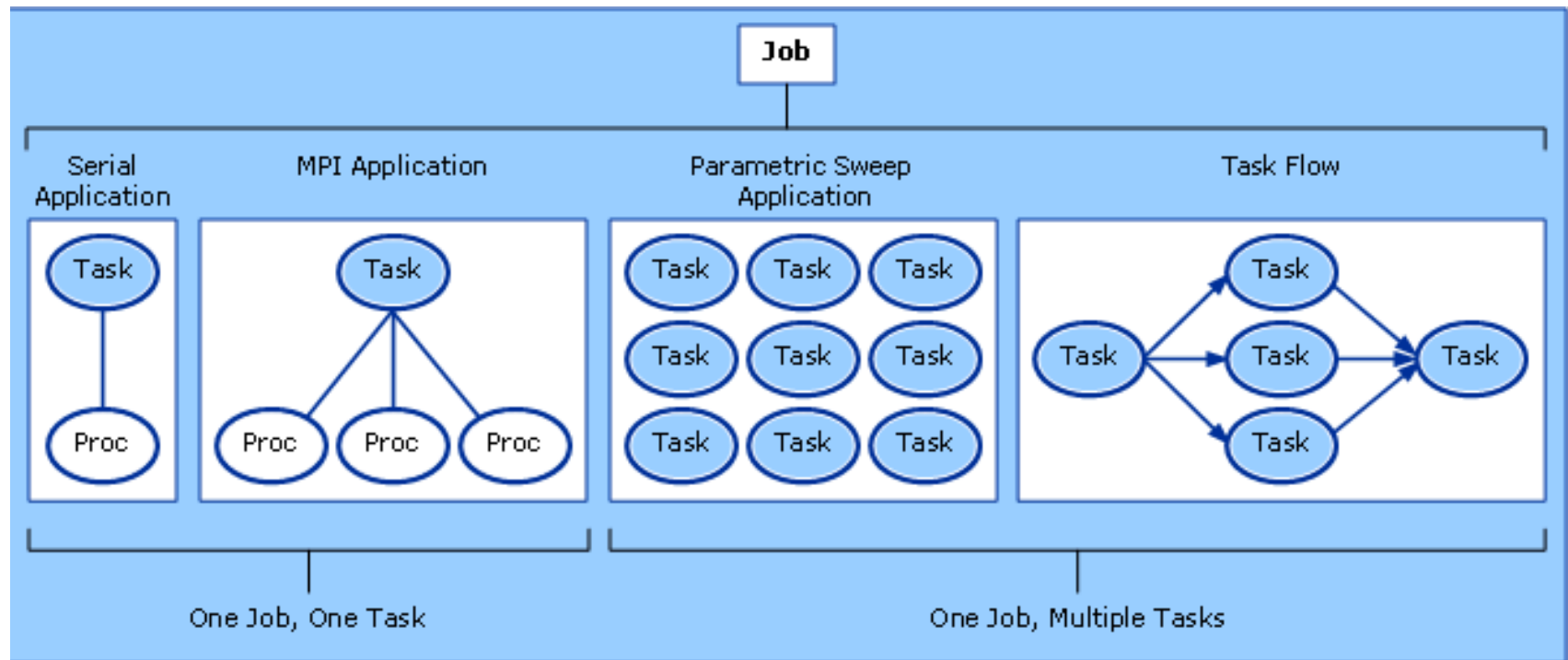
The interface also features a left-hand navigation pane with options like 'To Do List', 'Node Management', 'Remote Desktop Sessions', and 'System Monitor'. A right-hand 'Actions' pane contains 'Connect to Another Head Node', 'View', and 'Help'. The Windows taskbar at the bottom shows the Start button, open folders (D:\Scripts, C:\Documents and Settings...), and running applications (Computer Management, Compute Cluster Admin...). The system tray indicates the time is 1:51 PM on Wednesday.

Admin Console (Node Management)

The screenshot displays the Compute Cluster Administrator interface. A table lists cluster nodes with columns for Machine Name, Node Status, Jobs Running, CPUs, CPUs in Use, OS Version, Total Memory, Disk Size, Public IP, and Private IP. A context menu is open over the TIGERCN001 node, showing actions such as 'Launch Remote Desktop Connection', 'Pause', 'Resume', 'Reboot', 'Execute a Command...', 'Identify Node', 'Open System Monitor', 'Approve', 'Open Event Viewer', and 'Help'. The 'Execute a Command...' option is highlighted. The right-hand side of the console features an 'Actions' panel with sections for 'Node Management' and 'Multi Selection', each containing various management tasks like 'Add Node (Wizard)', 'Launch Job Console', 'Refresh', and 'Pause'. The bottom of the window shows a taskbar with the Start button, several application icons, and a system tray displaying the time as 1:54 PM on Wednesday.

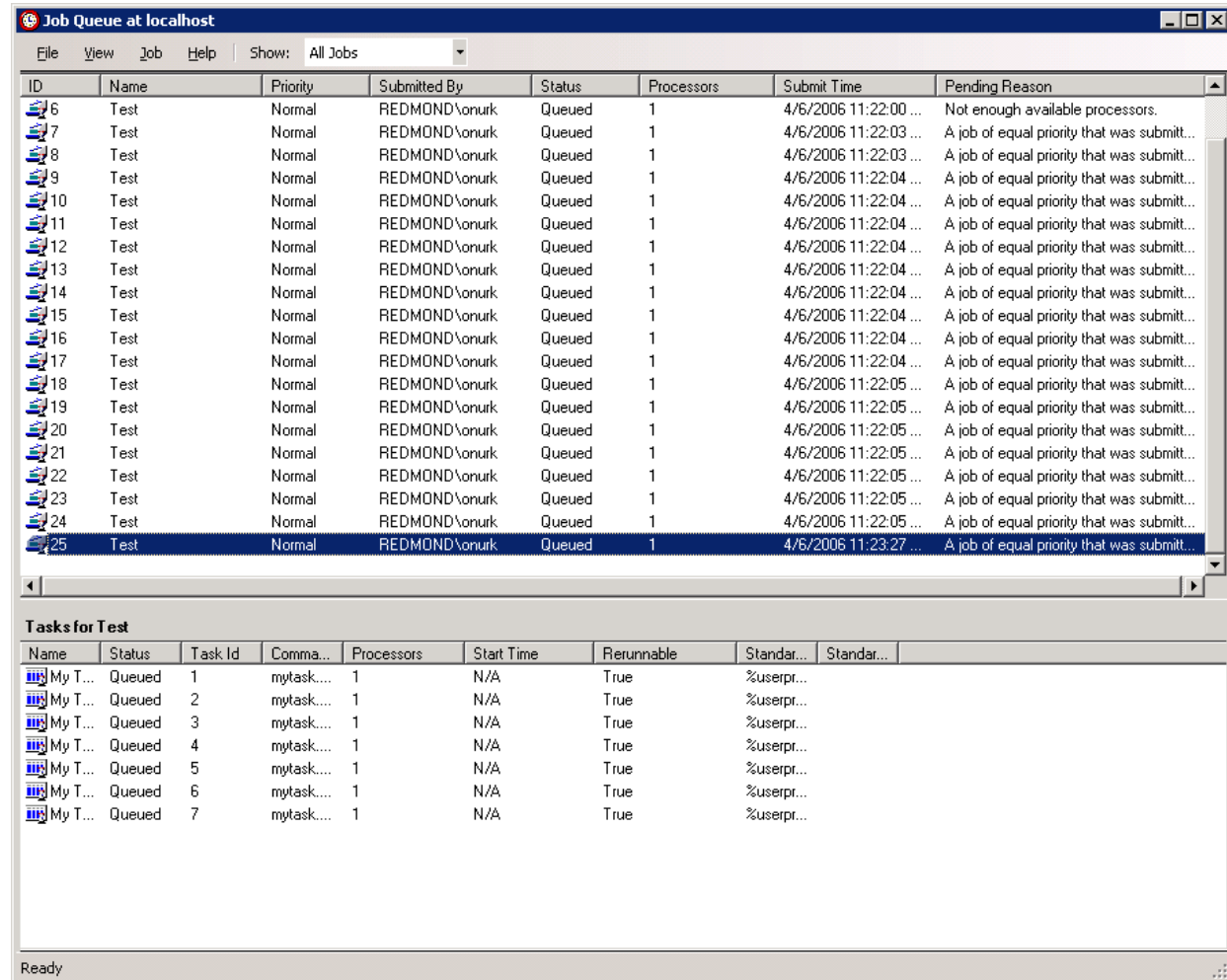
Machine...	Node Status	Jobs Ru...	CPUs	CPUs in...	OS Version	To...	Disk Size	Public IP	Private IP
TIGERCN001	OK	0	1	0	5.2.3790	2039 74G	157.59.128.109	192.168.0.63	
TIGERCN002	OK				5.2.3790	2039 74G	157.59.130.180	192.168.0.182	
TIGERCN003	OK				5.2.3790	2039 74G	157.59.128.181	192.168.0.115	
TIGERHN	OK				5.2.3790	2039 74G	157.59.129.13	192.168.0.1	

Common Job / Task Types



Compute Cluster Job Manager

- Centrally manage the entire job queue
- Print queue manager like experience
- Ability to save and submit jobs using templates
- Automatically create “Parametric Sweep”

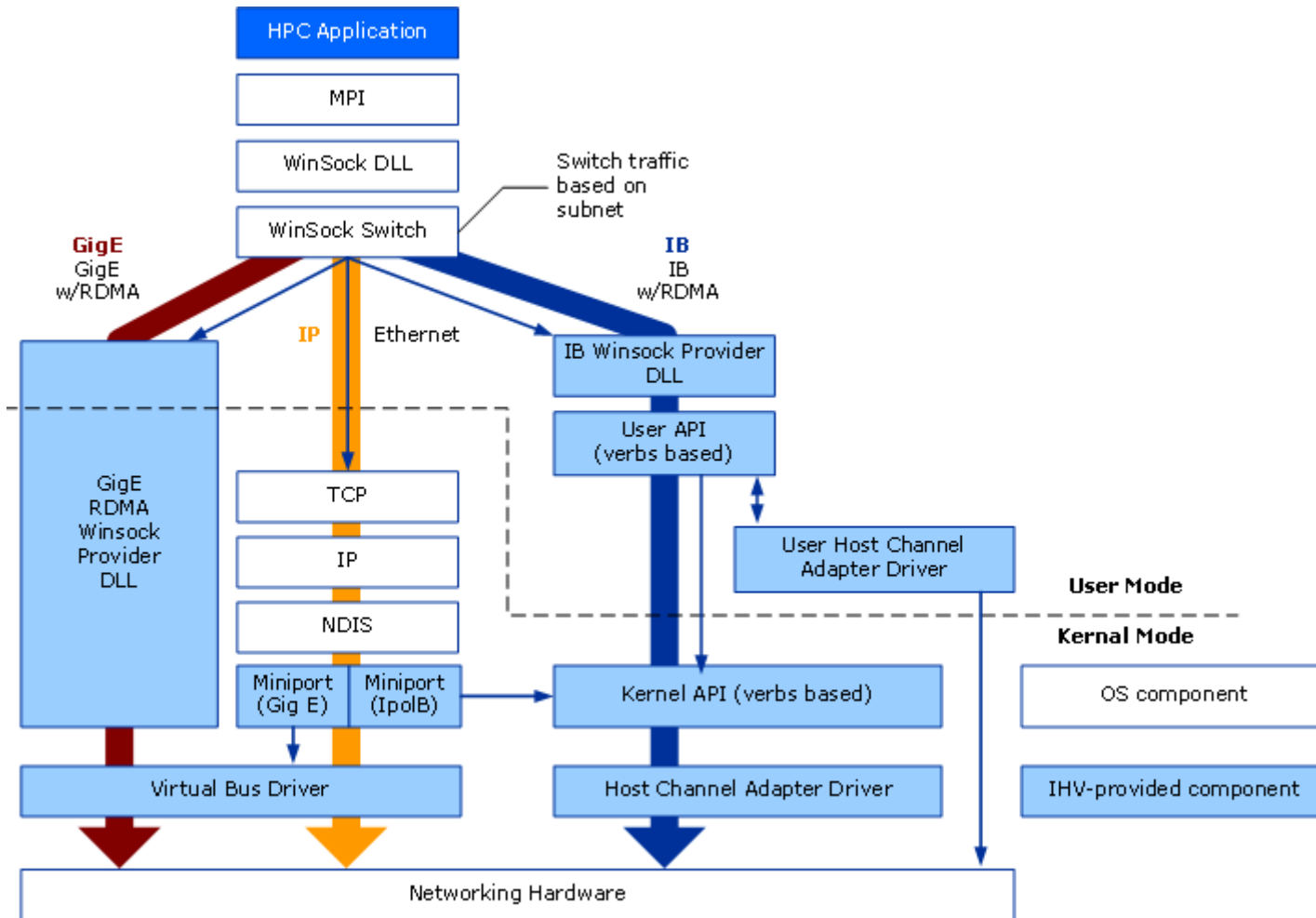


The screenshot shows the 'Job Queue at localhost' window. The main table lists jobs with columns: ID, Name, Priority, Submitted By, Status, Processors, Submit Time, and Pending Reason. Below this is a section for 'Tasks for Test' with columns: Name, Status, Task Id, Comma..., Processors, Start Time, Rerunnable, Standar..., and Standar....

ID	Name	Priority	Submitted By	Status	Processors	Submit Time	Pending Reason
6	Test	Normal	REDMOND\vonurk	Queued	1	4/6/2006 11:22:00 ...	Not enough available processors.
7	Test	Normal	REDMOND\vonurk	Queued	1	4/6/2006 11:22:03 ...	A job of equal priority that was submit...
8	Test	Normal	REDMOND\vonurk	Queued	1	4/6/2006 11:22:03 ...	A job of equal priority that was submit...
9	Test	Normal	REDMOND\vonurk	Queued	1	4/6/2006 11:22:04 ...	A job of equal priority that was submit...
10	Test	Normal	REDMOND\vonurk	Queued	1	4/6/2006 11:22:04 ...	A job of equal priority that was submit...
11	Test	Normal	REDMOND\vonurk	Queued	1	4/6/2006 11:22:04 ...	A job of equal priority that was submit...
12	Test	Normal	REDMOND\vonurk	Queued	1	4/6/2006 11:22:04 ...	A job of equal priority that was submit...
13	Test	Normal	REDMOND\vonurk	Queued	1	4/6/2006 11:22:04 ...	A job of equal priority that was submit...
14	Test	Normal	REDMOND\vonurk	Queued	1	4/6/2006 11:22:04 ...	A job of equal priority that was submit...
15	Test	Normal	REDMOND\vonurk	Queued	1	4/6/2006 11:22:04 ...	A job of equal priority that was submit...
16	Test	Normal	REDMOND\vonurk	Queued	1	4/6/2006 11:22:04 ...	A job of equal priority that was submit...
17	Test	Normal	REDMOND\vonurk	Queued	1	4/6/2006 11:22:04 ...	A job of equal priority that was submit...
18	Test	Normal	REDMOND\vonurk	Queued	1	4/6/2006 11:22:05 ...	A job of equal priority that was submit...
19	Test	Normal	REDMOND\vonurk	Queued	1	4/6/2006 11:22:05 ...	A job of equal priority that was submit...
20	Test	Normal	REDMOND\vonurk	Queued	1	4/6/2006 11:22:05 ...	A job of equal priority that was submit...
21	Test	Normal	REDMOND\vonurk	Queued	1	4/6/2006 11:22:05 ...	A job of equal priority that was submit...
22	Test	Normal	REDMOND\vonurk	Queued	1	4/6/2006 11:22:05 ...	A job of equal priority that was submit...
23	Test	Normal	REDMOND\vonurk	Queued	1	4/6/2006 11:22:05 ...	A job of equal priority that was submit...
24	Test	Normal	REDMOND\vonurk	Queued	1	4/6/2006 11:22:05 ...	A job of equal priority that was submit...
25	Test	Normal	REDMOND\vonurk	Queued	1	4/6/2006 11:23:27 ...	A job of equal priority that was submit...

Name	Status	Task Id	Comma...	Processors	Start Time	Rerunnable	Standar...	Standar...
My T...	Queued	1	mytask...	1	N/A	True	%userpr...	
My T...	Queued	2	mytask...	1	N/A	True	%userpr...	
My T...	Queued	3	mytask...	1	N/A	True	%userpr...	
My T...	Queued	4	mytask...	1	N/A	True	%userpr...	
My T...	Queued	5	mytask...	1	N/A	True	%userpr...	
My T...	Queued	6	mytask...	1	N/A	True	%userpr...	
My T...	Queued	7	mytask...	1	N/A	True	%userpr...	

Driver Model



hardware for Windows CCS

transtec

Clusternodes



Clusternodes



Clusternodes

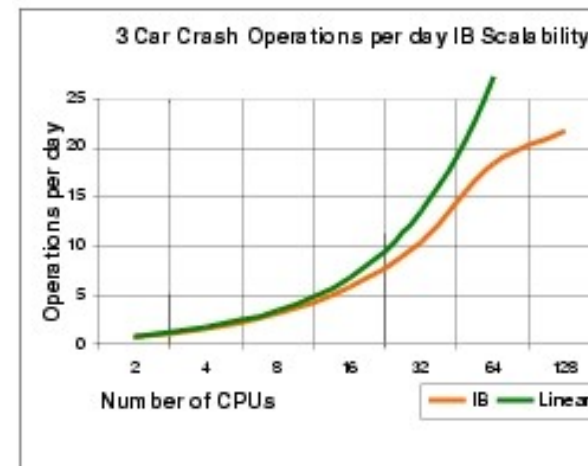
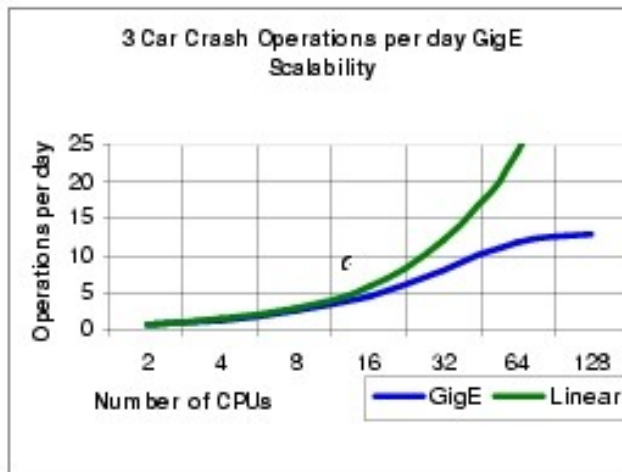


- Flexible and upgradable systems
- 19" form factor – 1U or 2U
- Dual Opteron or Dual Xeon
- Dual- or QuadCore CPUs



Networking

- All clusters equipped with Gigabit Ethernet
- High speed interconnect as an option
- Infiniband and Myrinet are certified for MS CCS



- turnkey Windows HPC Solution includes:
 - Setup of WDS/RIS for automatic node installation
 - Installation, setup and test of MPI and job scheduler
 - Integration in an existing Active Directory environment

Thanks for your attention

- Website: <http://www.transtec.de>
- Solutions: <http://www.transtec.de/D/D/solutions.html>
- Contact: michael.linke@transtec.de