



# Cisco Tidal Enterprise Scheduler

TES Engineering 6.28.2012



# Agenda

# Agenda

- Engineering Sessions
  - Deliver a series of engineering sessions to discuss
    - Technical/architectural changes with TES 6
    - Upgrade process
    - Performance optimization for TES 6
  - Focus primarily of system components and architecture versus feature / function.
  - Aim for an interactive session – Chat questions to the moderator and panelist will review and elaborate as appropriate.
  - Dedicate 50% of the time for Q/A



# TES 6.x Release Schedule

# Cisco TES Releases

(\*Subject to Change)



Self-Service  
Big Data / Hadoop  
Cloud Agents/Storage  
Mobile Client

\*6.1

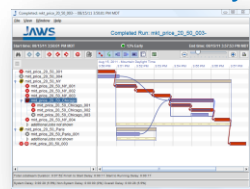


6.0.3

REST Adapter  
Job-Based Timezones  
Resource Constraints

JAWS  
for  
Cisco®  
TES

Predictive Analytics  
Historical Analytics



6.0.2

JDBC  
VMware  
JDE

6.0.1

BO  
PSFT  
COGNOS  
Informatica

6.0

Web based client  
SOAP/REST API, Agentless Scheduling, JMS,  
FTP, SFTP, SAP, EBSO, Oracle DB, MS SQL, etc.

Note: Bridge-based adapters supported

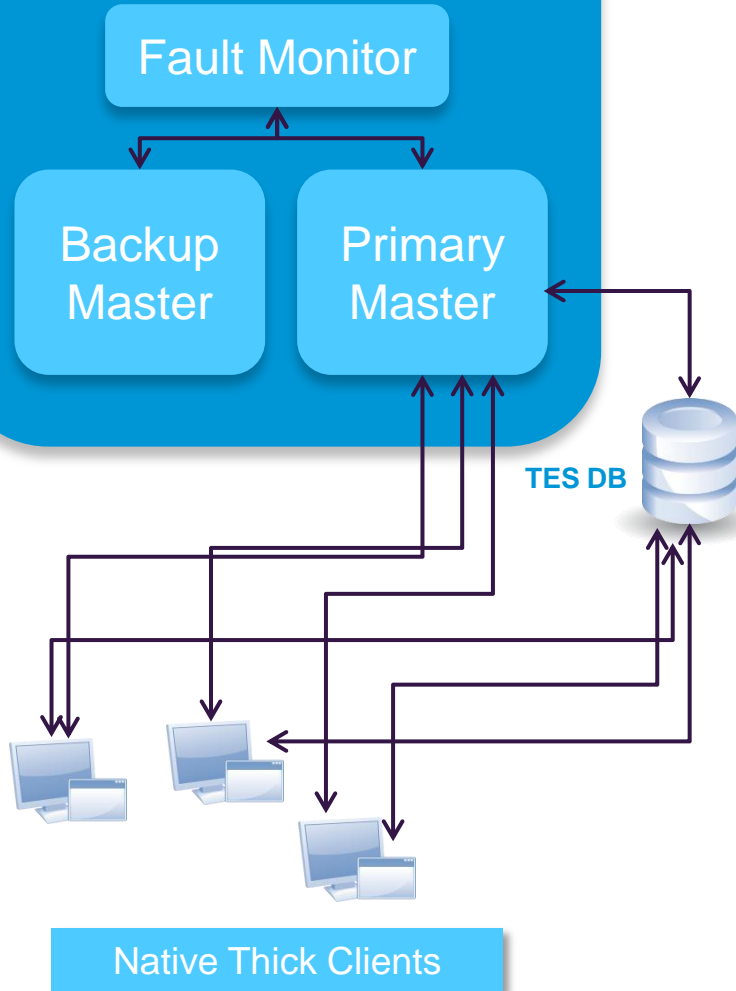


# TES 5.3.1 -> 6.x

## Architectural Overview

# TES 5.3.1

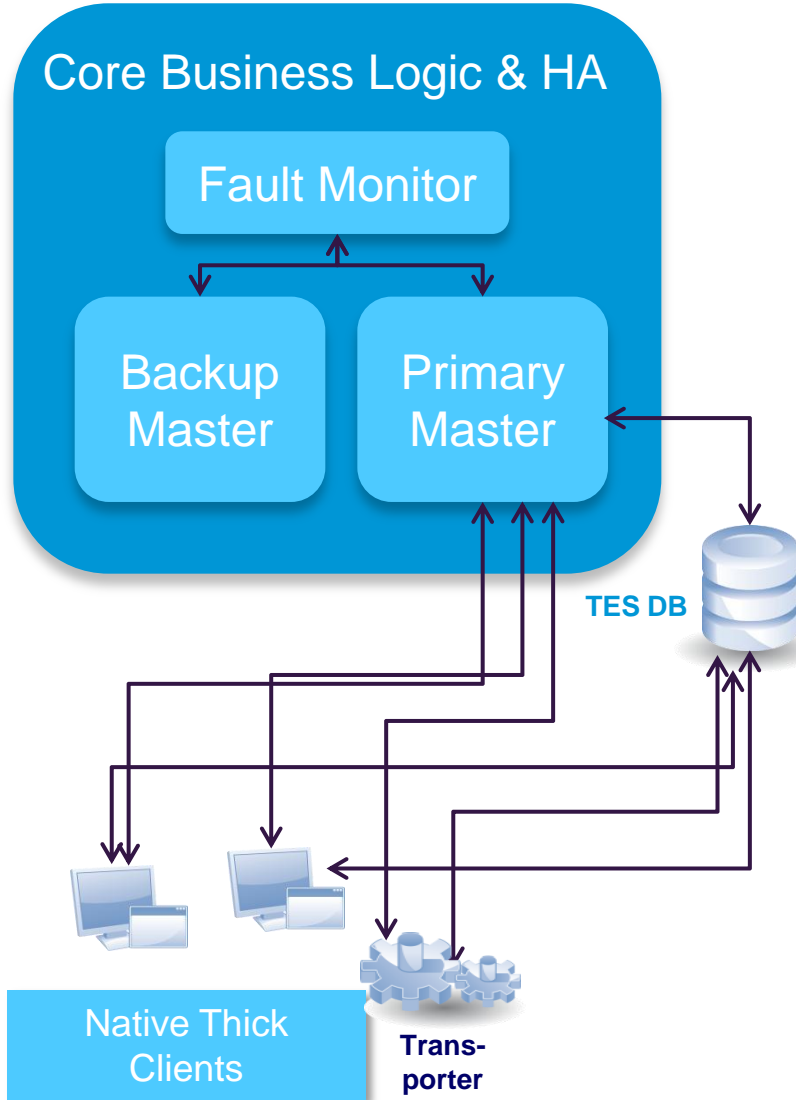
## Core Business Logic & HA



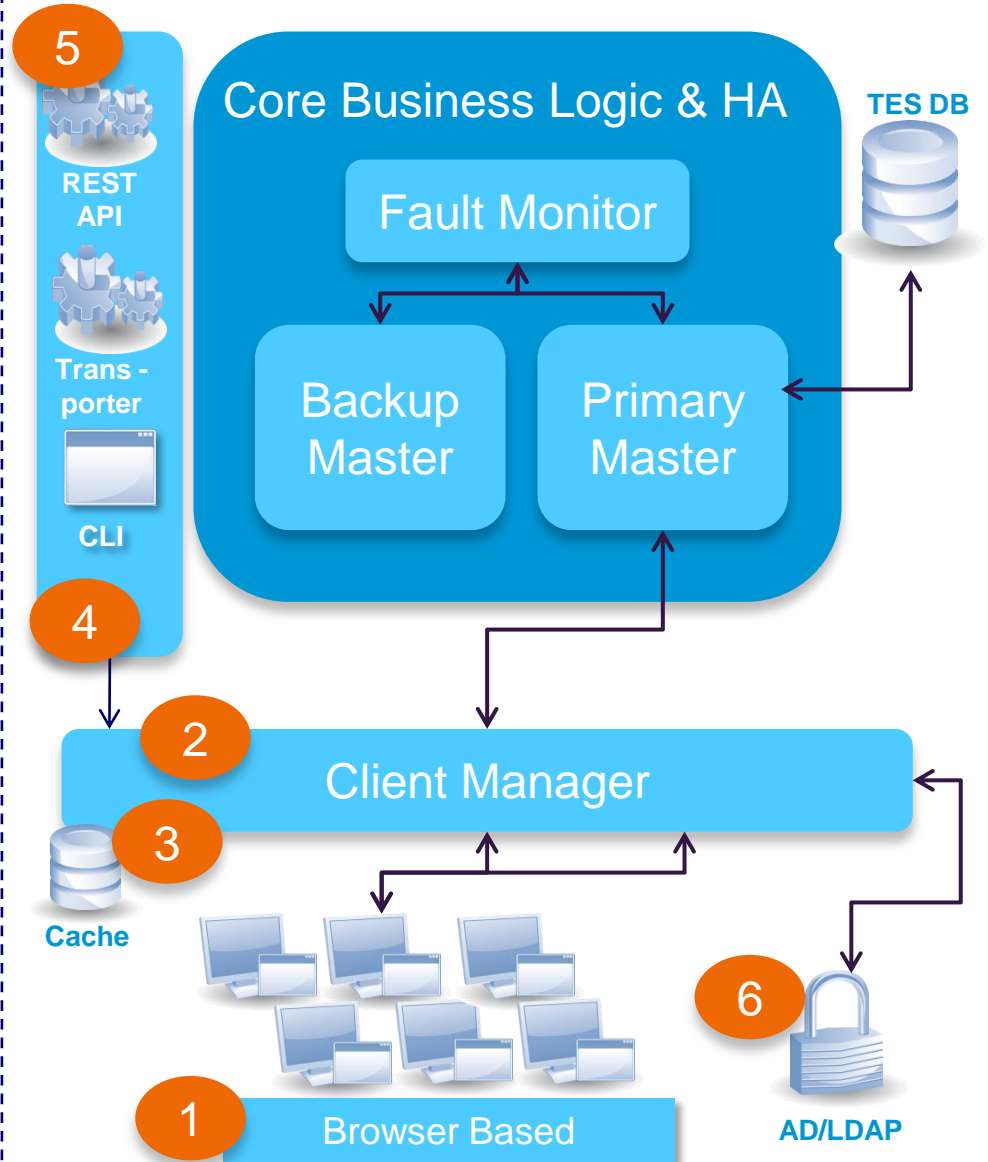
## TES 5.3.1 Legacy Architecture

- Each thick client communicated with the database and the master
- Each thick client had to receive updates from the master for updates to the database
- More users resulted in additional impact to the master as the master is responsible for pushing updates to the users
- Native clients should be "local" to master & DB versus across the WAN

# TES 5.3.1



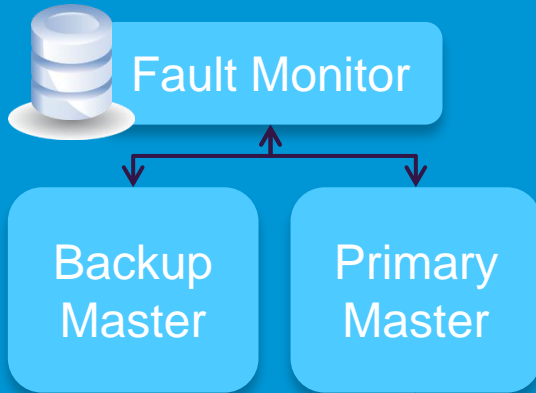
# TES 6





# TES 6.0.0 Major Architectural Updates - Client Manager

## Core Business Logic & HA



Client Manager

Client Manager

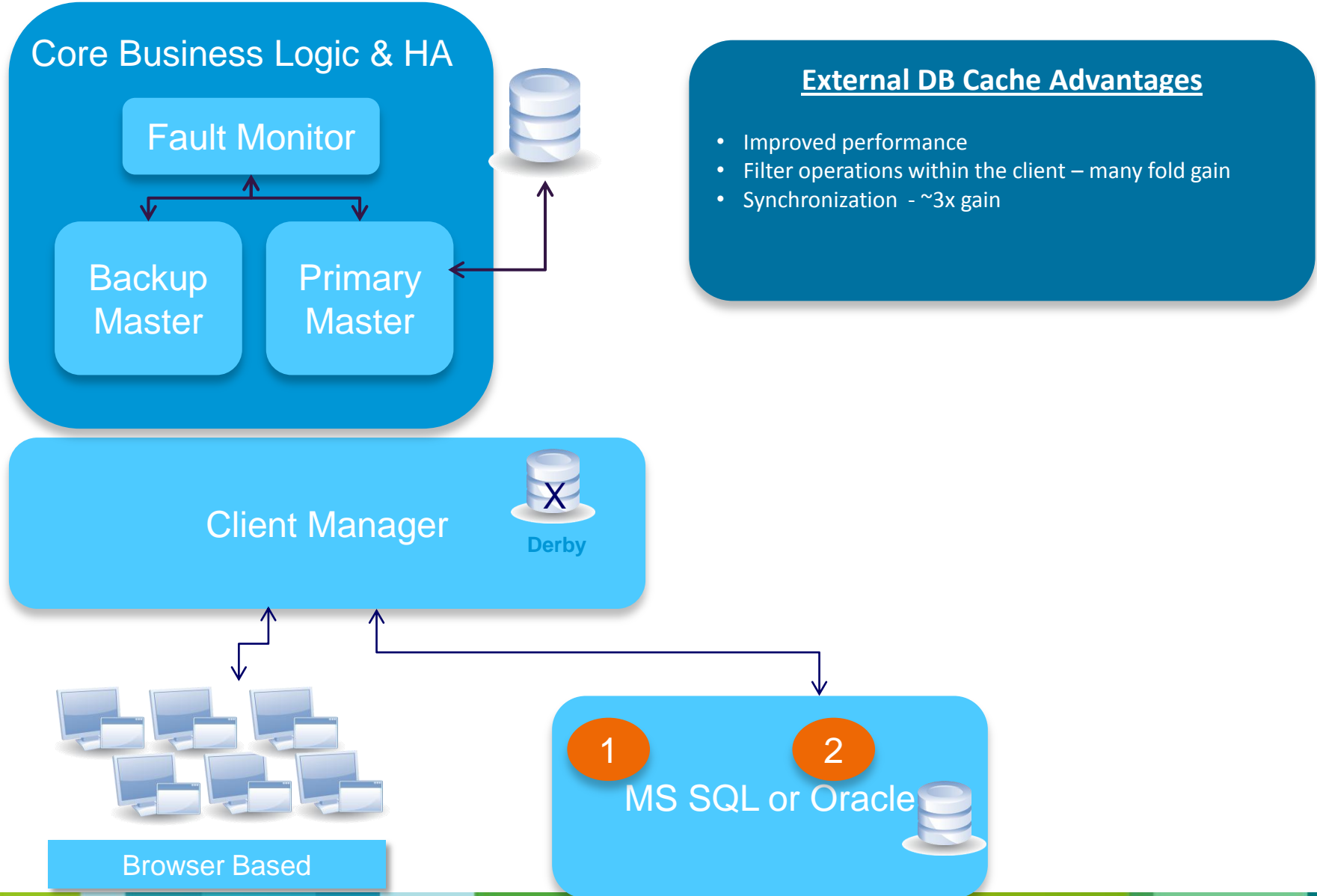


UI – Browser Based  
(IE 9 & FF 10)

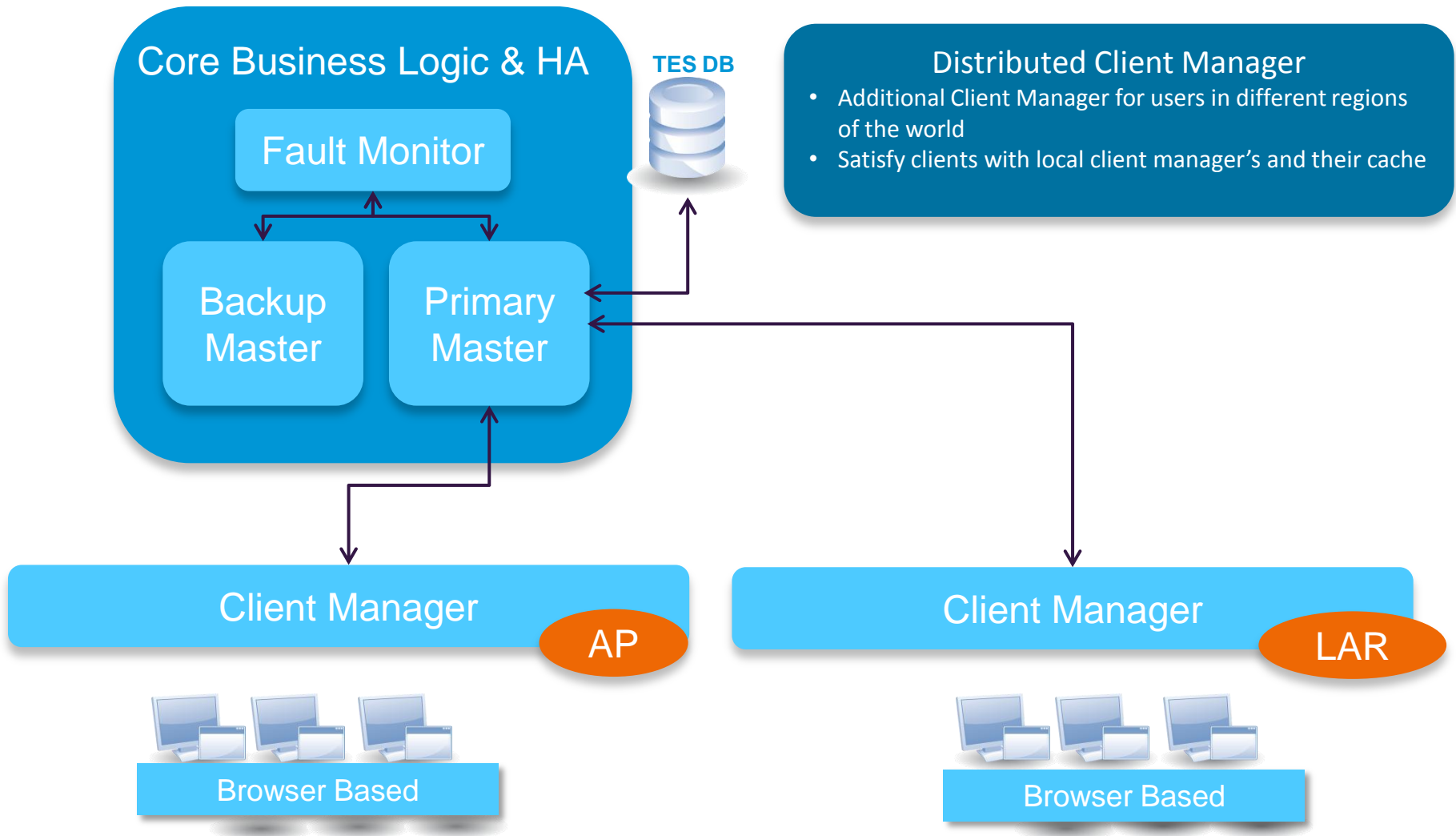
## Client Manager

- Portal like behavior in a browser which provides better navigation and control of the UI experience. You can now view multiple masters in one browser.
- Client Manager allows Enterprise Scheduler to achieve higher performance and scalability needs.
- The purpose of the Client Manager is to service requests from user initiated activities:
  - Tidal Web Client
  - Tidal Transporter
  - Other external sources that utilize the Command Line Interface (CLI) or published Enterprise Scheduler Web services.
- Client Manager allows the Scheduler Master to focus more capacity on core scheduling needs related to job execution and job compilations
- Client Manager addresses demands from such activities as users viewing/configuring scheduling data and output
- A single Client Manager is mandatory and additional Client Managers can be deployed to address additional performance or HA needs.
- Installed on separate instance from TES Master
- Internal Derby cache or external MS-SQL or Oracle cache supports the client manager
- Allow access across the WAN
- Eliminate thick client expense and admin

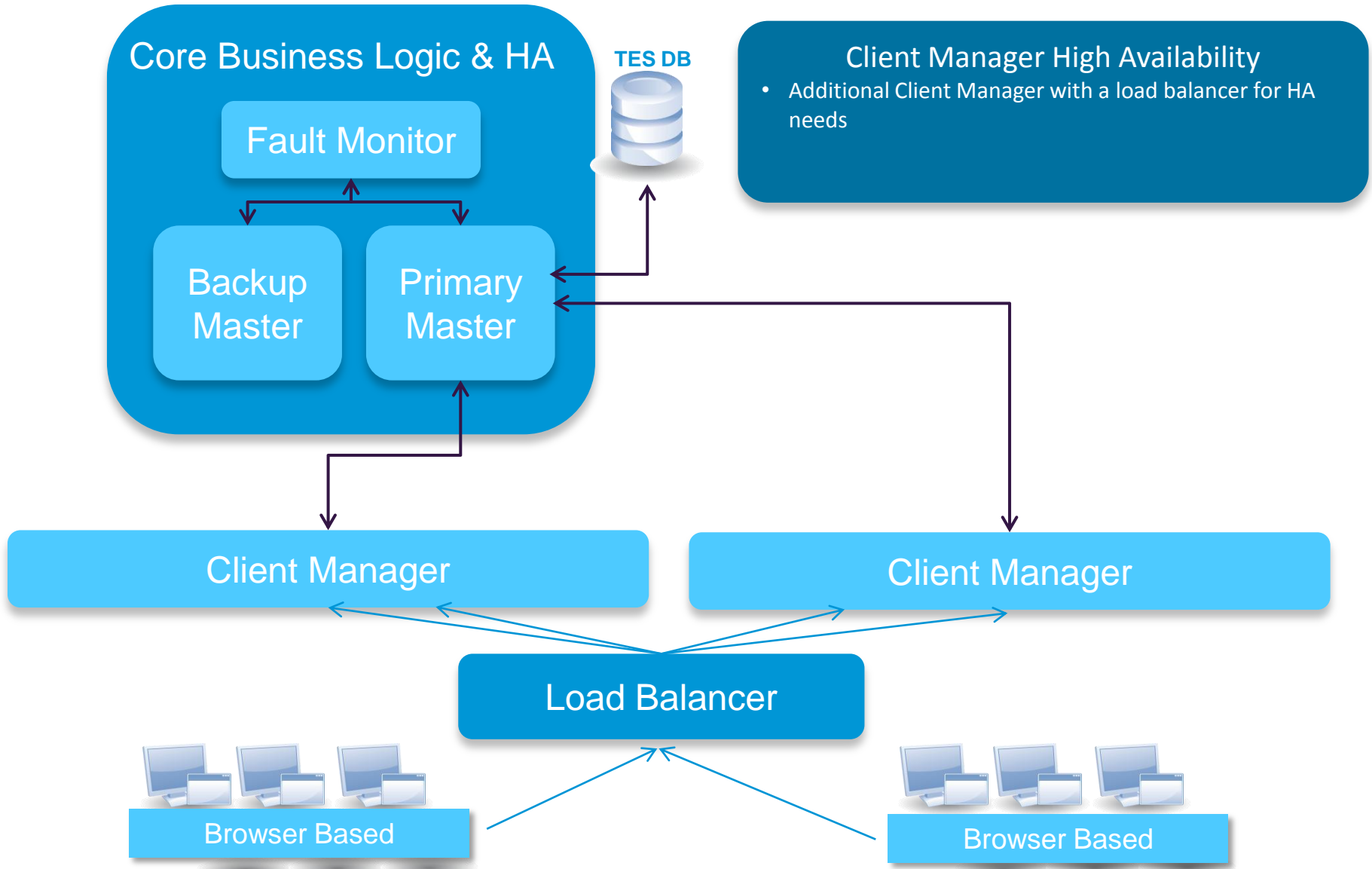
# TES 6 Option – External Cache Database



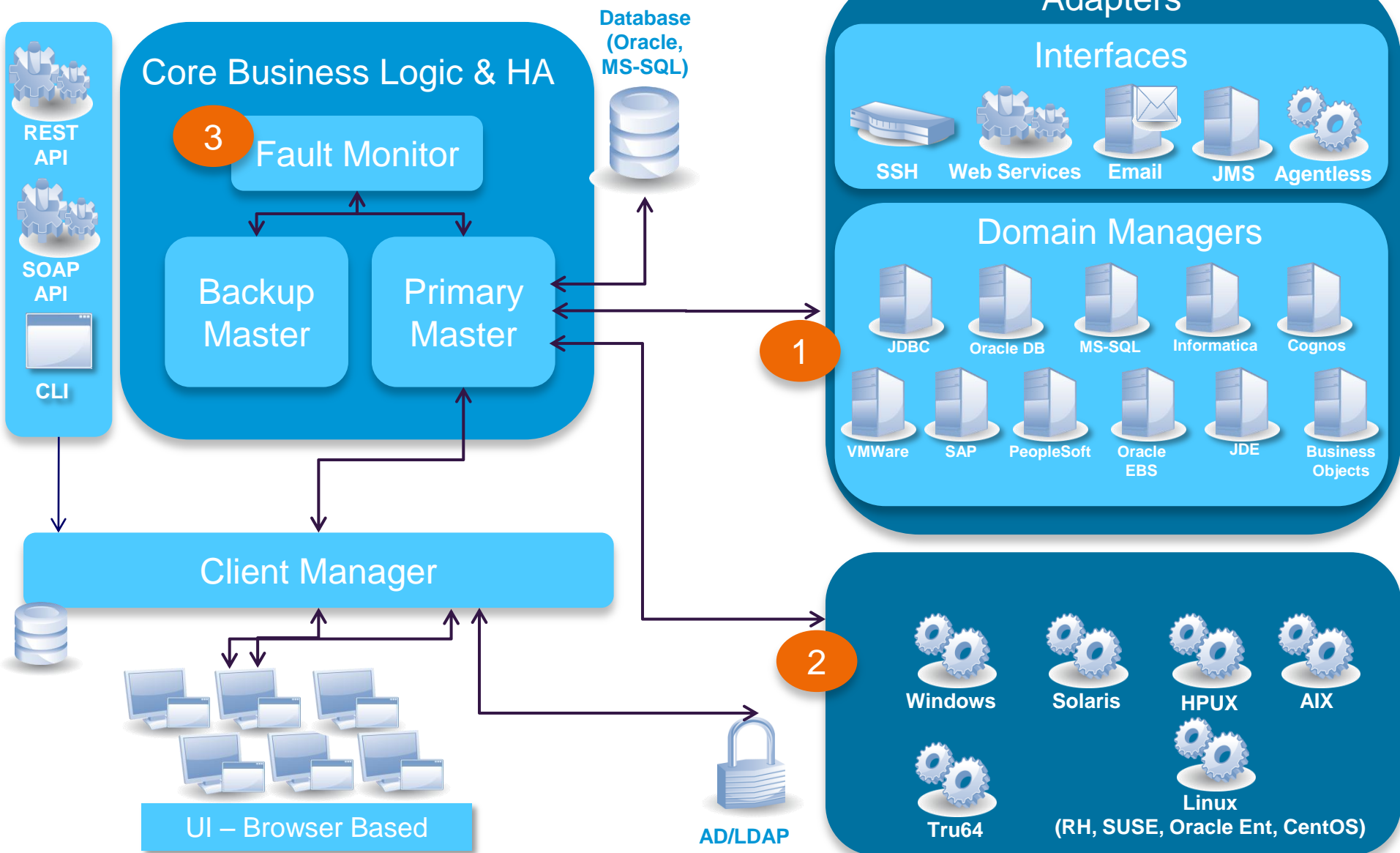
# TES 6 Option – Global workforce



# TES 6 Option – Load Balanced



# Some things haven't changed



# TES 6.x UI – Job Activity

File View Activities Reports Help      sjc-tesqe-pg05      0 wait      0 active      100% overall      qatest      Jun 27, 2012 2:00 PM      ENTERPRISE SCHEDULER

TES Console      Wednesday, 27 June, 2012 --32 Records Search Grid

Job No.	Name	Status	Parameters	Current Est Start	Est Duration	Reruns	Est Start	Time Zone	Act Start	Act End	Act Duration	Act DurationD
97	BO - Crystal Report (1)	Completed Normally		1:47 PM	0 min 29 s	0	1:47 PM	Pacific Standard	1:47 PM	1:47 PM	0 min 1 s	06
98	test (1)	Completed Normally	10	1:47 PM	0 min 22 s	0	1:47 PM	Pacific Daylight T	1:47 PM	1:47 PM	0 min 11 s	06
99	WS - Soap (1)	Completed Abnormally		1:47 PM	0 min 32 s	0	1:47 PM		1:47 PM	1:47 PM	0 min 1 s	06
100	PeopleSoft Job (1)	Completed Abnormally		1:47 PM	1 min	0	1:47 PM	GMT-07:45	1:47 PM	1:47 PM	0 min 1 s	06
101	JDBC Job (1)	Completed Normally		1:47 PM	0 min 15 s	0	1:47 PM	GMT-07:00	1:47 PM	1:47 PM	0 min 1 s	06
102	Vmware Job (1)	Completed Normally		1:47 PM	0 min 15 s	0	1:47 PM	GMT-08:00	1:47 PM	1:47 PM	0 min 1 s	06
103	Oraapps 1 (1)	Completed Normally		1:47 PM	0 min 36 s	0	1:47 PM	+00:00	1:47 PM	1:47 PM	0 min 20 s	06
104	OraApps 2 (1)	Completed Normally		1:47 PM	0 min 32 s	0	1:47 PM	+00:00	1:47 PM	1:47 PM	0 min 21 s	06
105	MsSql Job (1)	Completed Normally		1:47 PM	0 min 15 s	0	1:47 PM	GMT-07:00	1:47 PM	1:47 PM	0 min 1 s	06
106	Horizon Job (1)	Completed Normally		1 min	0	1:47 PM		Pacific Daylight T			1 min	06
107	JMs Topic (1)	Completed Normally		1:47 PM	0 min 15 s	0	1:47 PM		1:47 PM	1:47 PM	0 min 1 s	06
108	JMs - queue (1)	Completed Normally		1:47 PM	0 min 15 s	0	1:47 PM		1:47 PM	1:47 PM	0 min 1 s	06
109	OraDB (1)	Completed Normally		1:47 PM	0 min 15 s	0	1:47 PM	-07:00	1:47 PM	1:47 PM	0 min 1 s	06
110	cognos job (1)	Completed Normally		1:47 PM	0 min 15 s	0	1:47 PM	PST	1:47 PM	1:47 PM	0 min 1 s	06
111	SSH Job (1)	Completed Normally	-i	1:47 PM	0 min 18 s	0	1:47 PM		1:47 PM	1:47 PM	0 min 5 s	06
112	hostname (1)	Completed Normally		1:47 PM	0 min 8 s	0	1:47 PM	Pacific Daylight T	1:47 PM	1:47 PM	0 min 1 s	06
113	Sleep_Job_10sec (1)	Completed Normally	10	1:47 PM	0 min 16 s	0	1:47 PM	Pacific Daylight T	1:47 PM	1:47 PM	0 min 11 s	06
131	BO - Data Service (1)	Completed Normally		1:47 PM	0 min 15 s	0	1:47 PM	Pacific Standard	1:47 PM	1:47 PM	0 min 1 s	06
132	cognos job (2)	Completed Normally		1:47 PM	0 min 7 s	0	1:47 PM	PST	1:47 PM	1:47 PM	0 min 1 s	06
133	Horizon Job (2)	Completed Normally		1 min	0	1:47 PM		Pacific Daylight T			1 min	06
134	BO - Crystal Report (2)	Completed Normally		1:47 PM	0 min 19 s	0	1:47 PM	Pacific Standard	1:47 PM	1:48 PM	0 min 11 s	06
135	JMs - queue (2)	Completed Normally		1:47 PM	0 min 7 s	0	1:47 PM		1:47 PM	1:47 PM	0 min 1 s	06
136	MsSql Job (2)	Completed Normally		1:47 PM	0 min 7 s	0	1:47 PM	GMT-07:00	1:47 PM	1:47 PM	0 min 1 s	06
137	JDBC Job (2)	Completed Normally		1:47 PM	0 min 7 s	0	1:47 PM	GMT-07:00	1:47 PM	1:47 PM	0 min 1 s	06
138	JMs Topic (2)	Completed Normally		1:47 PM	0 min 7 s	0	1:47 PM		1:47 PM	1:47 PM	0 min 1 s	06
139	Oraapps 1 (2)	Completed Normally		1:47 PM	0 min 51 s	0	1:47 PM	+00:00	1:47 PM	1:48 PM	1 min 6 s	06
140	OraDB (2)	Completed Normally		1:47 PM	0 min 7 s	0	1:47 PM	-07:00	1:47 PM	1:47 PM	0 min 1 s	06
141	OraApps 2 (2)	Completed Normally		1:47 PM	0 min 31 s	0	1:47 PM	+00:00	1:47 PM	1:48 PM	0 min 30 s	06
142	PeopleSoft Job (2)	Completed Abnormally		1:48 PM	1 min	0	1:47 PM	GMT-07:45	1:48 PM	1:48 PM	0 min 1 s	06
143	SSH Job (2)	Completed Normally	-i	1:47 PM	0 min 11 s	0	1:47 PM		1:47 PM	1:48 PM	0 min 5 s	06
144	WS - Soap (2)	Completed Abnormally		1:47 PM	0 min 32 s	0	1:47 PM		1:47 PM	1:47 PM	0 min 1 s	06
145	Vmware Job (2)	Completed Normally		1:48 PM	0 min 7 s	0	1:48 PM	GMT-08:00	1:48 PM	1:48 PM	0 min 1 s	06

# TES 6.x UI – Master Console

TES Web Client

sjc-tesqe-pg05.tidalsoft.local:8080/client/console.html?locale=en

sjc-tesqe-pg05      0 wait      0 active      100% overall      qatest Jun 27, 2012 2:22 PM

File View Activities Reports Help

TES Console

- Operations
  - Job Activity
  - Event Activity
  - Alerts
  - Logs
  - Schedules
  - Master Status
- Definitions
  - Jobs
  - Calendars
  - Actions
  - Events
  - Job Classes
  - Variables
  - Agent Lists
  - Queues
  - Resources
  - Fiscal Calendars
- Administration
  - Connections
  - Interactive Users
  - Runtime Users
  - LDAP Groups
  - Workgroups
  - Security Policies
  - Adapters

Master Status - version 6.0.3.161      Plugin(tes-6.0.3) - version 6.0.3.171

Overview Queue Connections Messages

General Information		Poll Activity	
Description	Value	Time	Activity
Adhoc Jobs	15	06/27/2012 13:48:57	Job Oraapps 1[8] completed status [Completed Normally].
Carried Forwards To Go	0	06/27/2012 13:48:57	Oraapps 1[139] received output.
Jobs Cancelled	0	06/27/2012 13:48:57	Request output for job Oraapps 1[139].
Jobs Carried Forward	0	06/27/2012 13:48:57	Job Oraapps 1[8] completed.
Jobs Done	32	06/27/2012 13:48:43	Job PeopleSoft Job[5] completed status [Completed Abnormally].
Jobs To Go	0	06/27/2012 13:48:43	PeopleSoft Job[142] received output.
Last Poll	06/27/2012 14:2	06/27/2012 13:48:25	Job Horizon Job[11] completed status [Completed Normally].
Production Date	06/27/2012	06/27/2012 13:48:25	Request output for job Horizon Job[133].
Reruns	0	06/27/2012 13:48:25	Request output for job Horizon Job[133].
Scheduled Jobs	17	06/27/2012 13:48:25	Job Horizon Job[11] completed.
Start Time	06/27/2012 10:0	06/27/2012 13:48:22	Job OraApps 2[9] completed status [Completed Normally].
Total Jobs	32	06/27/2012 13:48:22	OraApps 2[141] received output.
		06/27/2012 13:48:22	Request output for job OraApps 2[141].
		06/27/2012 13:48:22	Job OraApps 2[9] completed.
		06/27/2012 13:48:13	Job Horizon Job[11] completed status [Completed Normally].
		06/27/2012 13:48:13	Request output for job Horizon Job[106].
		06/27/2012 13:48:13	Request output for job Horizon Job[106].
		06/27/2012 13:48:13	Job Horizon Job[11] completed.
		06/27/2012 13:48:13	Request output for job PeopleSoft Job[142].
		06/27/2012 13:48:13	Job PeopleSoft Job[5] completed.
		06/27/2012 13:48:13	Job PeopleSoft Job[5] completed status [Completed Abnormally].
		06/27/2012 13:48:13	PeopleSoft Job[100] received output.
		06/27/2012 13:48:09	Job Vmware Job[7] completed status [Completed Normally].
		06/27/2012 13:48:09	Vmware Job[145] received output.
		06/27/2012 13:48:09	Request output for job Vmware Job[145].
		06/27/2012 13:48:09	Job Vmware Job[7] completed.
		06/27/2012 13:48:08	Job BO - Crystal Report[2] completed status [Completed Normally].
		06/27/2012 13:48:08	BO - Crystal Report[134] received output.
		06/27/2012 13:48:08	Request output for job BO - Crystal Report[134].
		06/27/2012 13:48:08	Job BO - Crvstal Report[21] completed.

# TES 6.x UI – Job Definition

TES Web Client

sjc-tesqe-pg05.tidalsoft.local:8080/client/console.html?locale=en

sjc-tesqe-pg05      0 wait      0 active      100% overall      qatest      Jun 27, 2012 1:59 PM

File View Activities Reports Help

TES Console

Operations

- Job Activity
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- Alerts
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- Schedules
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- Definitions
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  - Agent Lists
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  - Runtime Users
  - LDAP Groups
  - Workgroups
  - Security Policies
  - Adapters

Name	Owner	Enabled	Modified	Calendar	Agent	Type	Program/Command	Job Class	Job Alias	Job From	Job Until	Job ID	Runtime User
BO - Crystal Report	qatest	Yes	06/27/2012 1	Daily	BO Adapter	BusinessOb	CR: Comparative Inco		2			2	BO\Administrat
BO - Data Service	qatest	Yes	06/27/2012 1		BO Adapter	BusinessOb	DS: Job_Update_Adm		3			3	BO\Administrat
cognos job	qatest	Yes	06/27/2012 1	Daily	Cognos Adapter	Cognos	Date Between List		15			15	TIDALSOFT\qat
Horizon Job	qatest	Yes	06/27/2012 1	Daily	Horizon Adapter	Horizon	SAP Administrator Che		11			11	TIDALSOFT\qat
hostname	qatest	Yes	06/27/2012 1	Daily	sjc-tesqe-pg05	Job	hostname		17			17	TIDALSOFT\qat
JDBC Job	qatest	Yes	06/27/2012 1	Daily	JDBC Adapter	JDBC	select * from dbo.spt		6			6	sa
JMs - queue	qatest	Yes	06/27/2012 1	Daily	Jms Adapter	JMS			12			12	weblogic
JMs Topic	qatest	Yes	06/27/2012 1	Daily	Jms Adapter	JMS			13			13	weblogic
MsSql Job	qatest	Yes	06/27/2012 1	Daily	MSSQL	MSSql			10			10	sa
Oraapps 1	qatest	Yes	06/27/2012 1	Daily	Oracle Apps	OracleApps			8			8	test
OraApps 2	qatest	Yes	06/27/2012 1	Daily	Oracle Apps	OracleApps			9			9	test
OraDB	qatest	Yes	06/27/2012 1	Daily	Oracle DB	Oracle DB			14			14	system
PeopleSoft Job	qatest	Yes	06/27/2012 1	Daily	PeopleSoft Adapter	PeopleSoft			5			5	PS
Sleep_Job_10sec	qatest	Yes	06/27/2012 1	Daily	sjc-tesqe-pg05	Job	sleep		18			18	TIDALSOFT\qat
SSH Job	qatest	Yes	06/27/2012 1	Daily	SSH Adapter	SSH	ls		16			16	root
test	qatest	Yes	06/27/2012 1	Daily	sjc-tesqe-pg05	Job	C:\Program Files (x86		1			1	TIDALSOFT\qat
Vmware Job	qatest	Yes	06/27/2012 1	Daily	Vmware Adapter	VMware	Query Power State: S		7			7	tidalsoft\bhush
WS - Soap	qatest	Yes	06/27/2012 1	Daily	WS Soap	WebService	addrule		4			4	TIDALSOFT\qat

18 Records Search Grid



# TES 6.x UI – Connections

TES Web Client

sjc-tesqe-pg05.tidalsoft.local:8080/client/console.html?locale=en

File View Activities Reports Help

sjc-tesqe-pg05      0 wait      0 active      100% overall      qatest      Jun 27, 2012 1:59 PM

ENTE SCHE

TES Console

Operations

- Job Activity
- Event Activity
- Alerts
- Logs
- Schedules
- Master Status

Definitions

- Jobs
- Calendars
- Actions
- Events
- Job Classes
- Variables
- Agent Lists
- Queues
- Resources
- Fiscal Calendars

Administration

- Connections
- Interactive Users
- Runtime Users
- LDAP Groups
- Workgroups
- Security Policies
- Adapters

Name	Machine	Type	Platform	Enabled	Modified	Load	Time Differ	Time Zone	Floating	Active	Limit	Version	Out Until	Time Availat
Windows Master[Windows]	sjc-tesqe-pg0	Master	Windows	Yes			0 min.			0	0	6.0.3.161		
zOS Agent[z/OS]		Agent	z/OS	No			0 min.			0	10			
UNIX Agent[UNIX]		Agent	UNIX	No			0 min.			0	10			
sjc-tesqe-pg05[Windows]	sjc-tesqe-pg0	Agent	Windows	Yes		5.000	0 min.	Pacific Daylig		0	10	3.1.0.03		
Windows Agent2[Windows]		Agent	Windows	No			0 min.			0	10			
Cognos Adapter[Cognos]	sjc-cognos-1C	Adapter Servi	Cognos	Yes	06/27/2012 1	0.000	0 min.	PST		2	10	10.1/av:3.0.3		
Horizon Adapter[Horizon]	pal-mikepc3	Adapter Servi	Horizon	Yes	06/27/2012 0	0.000	-74 min.	Pacific Daylig		0	10	1.80.0		
Oracle DB[Oracle DB]	jdbc:oracle:th	Adapter Servi	Oracle DB	Yes	06/27/2012 0	0.000	0 min.	-07:00		0	10	10.2.0.1.0		
Vmware Adapter[VMware]	sjc-esxvc-01.1	Adapter Servi	VMware	Yes	06/27/2012 1	0.000	0 min.	GMT-08:00		0	10	4.0.0/API 4.0		
WS Rest[WebService]	http://sjc-tes	Adapter Servi	WebService	Yes	06/27/2012 0	0.000	0 min.			0	10			
SSH Adapter[SSH]	172.21.46.17	Adapter Servi	SSH	Yes	06/27/2012 0	0.000	0 min.			1	10	1.0.3.156		
JDBC Adapter[JDBC]	sjc-tesqe-aut	Adapter Servi	JDBC	Yes	06/27/2012 0	0.000	0 min.	GMT-07:00		0	10	10.50.1600.1		
BO Adapter[BusinessObjects]	HOU-BOE-01	Adapter Servi	BusinessObj	Yes	06/27/2012 0	0.000	0 min.	Pacific Stand		0	10	12.2/DS 12.2		
Oracle Apps[OracleApps]	jdbc:oracle:th	Adapter Servi	OracleApps	Yes	06/27/2012 0	0.000	-17 min.	+00:00		4	10	12.1.1/Bdg4.		
WS Soap[WebService]	http://sjc-tes	Adapter Servi	WebService	Yes	06/27/2012 0	0.000	0 min.			0	10			
Sap Adapter[SAP]	sapr3e02/800	Adapter Servi	SAP	No	06/27/2012 1		0 min.			0	10			
Jms Adapter[JMS]	t3://sjc-webl	Adapter Servi	JMS	Yes	06/27/2012 1	0.000	0 min.			0	10			
Infra Adapter[Informatica]	[Domain_sjc-	Adapter Servi	Informatica	No	06/27/2012 1		0 min.			0	10			
PeopleSoft Adapter[PeopleSoft]	PSNT	Adapter Servi	PeopleSoft	Yes	06/27/2012 0	0.000	-3 min.	GMT-07:45		0	10	8.5		
MSSQL[MSSql]	jdbc:sqlserve	Adapter Servi	MSSql	Yes	06/27/2012 0	0.000	0 min.	GMT-07:00		0	10	SQL Server 20		

20 Records Search Grid

# Unique TES 6.x Features and Their Importance

- TES workgroup security -- Users that are joined to a TES workgroup can be assigned a specific security policy for their specific needs
- Job Based Time Zones
  - In previous versions of TES, jobs located in a specific timezone that were affected by a master located in a different timezone had to be manually modified to reflect the timezone change.
  - The 6.0.3 Job-based timezone enhancement allows for the scheduling of a job, or job group, based on an alternative, user-defined timezone instead of the master timezone.
  - You can define a scheduled time window across worldwide or nationwide environments located in different timezones. For example, if the Master associated with your job is based in the PST timezone and you want the job to run in an alternative timezone, such as AMERICA/NEW\_YORK, you can select a timezone specifically for a given job. The Master internal process will self-adjust the scheduled job times as the Master or job-specific timezones adjust.
- System Resource Based Scheduling
  - This enhancement allows job administrators to specify additional real-time system resource criteria before a job is launched.
  - For example, a job can be constrained to run only if a certain percentage of CPU is free and/or an amount of system memory is available.
  - Custom resources can be defined that run user-specified commands to return resource values from the agent.

# Potential speed bumps - suggestions

- Must be on TES 5.3.1 before TES 6x upgrade
- Upgrade all TES agents – must be TES 3 agent for TES 6x
- Engage TAC/Support to learn of any hotfixes/patches of interest
- Do the upgrade in a non-production environment first
- Limit your history retention – expect the synchronization process to take time (will vary based on historical data retention)
- Evaluate early in the process if you want to externalize the Client Manager database
- Do not add additional client managers unless required by your business
- IE 9 has proven to be much faster than IE 7/8 (consider using FF if IE9 is not an option)
- Know the system requirements of the various components – don't cut corners on memory requirements; know the system and software version requirements
- Engage directory services team for AD/LDAP information
- Engage services to assist in the process
- **IMPORTANT NOTE:** Currency of platform & application support will be done on the latest version of TES 6; If you are considering app/platform upgrades and are running TES 5.3.1 – please contact support to confirm support



# TES 3.0

## Agent for Windows

### Performance Metrics

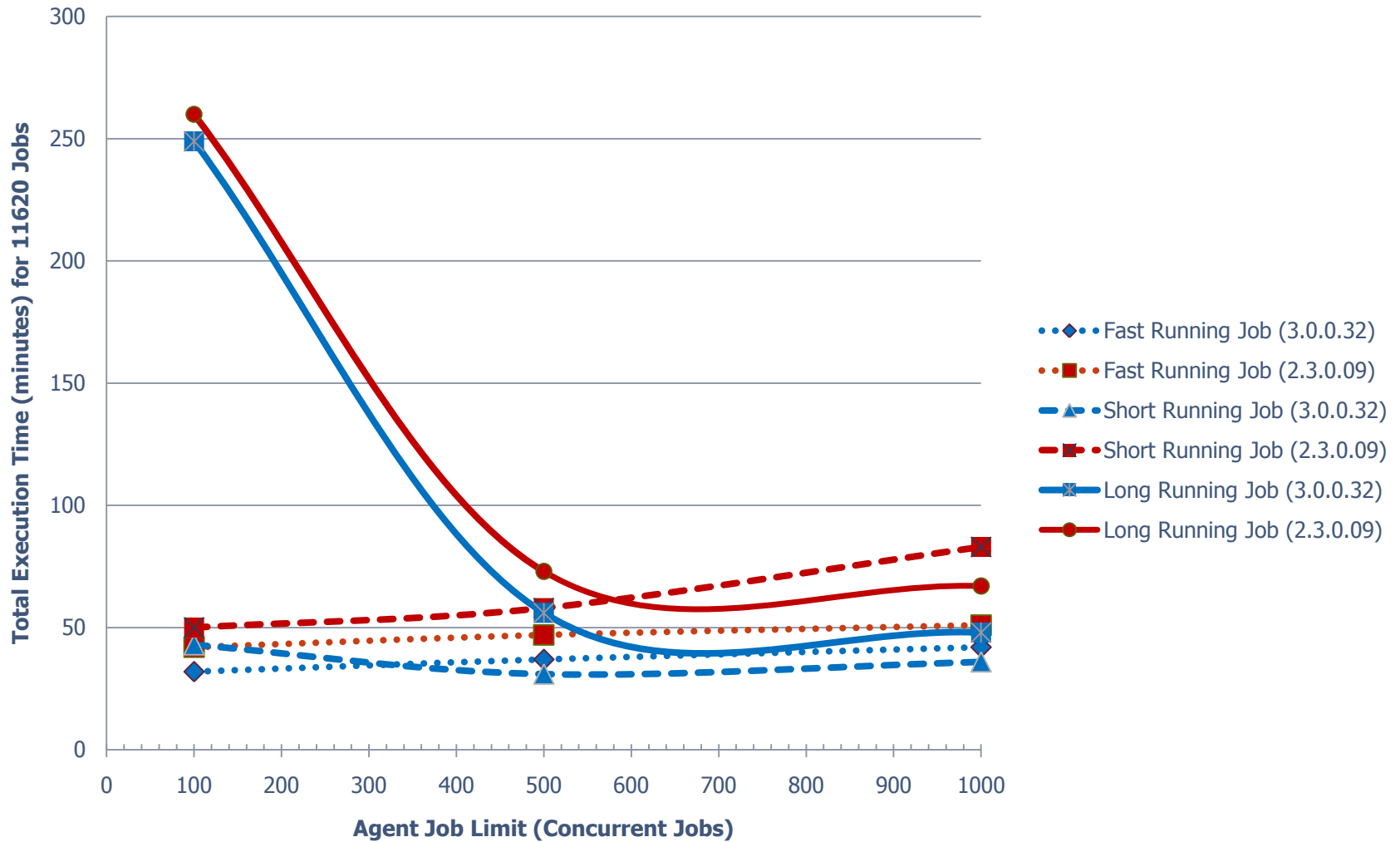
## TES Windows Agent Performance (Improvements)

Job Execution Time Improvement			
Agent Job Limit (Concurrent Jobs)	Fast Running Jobs (sub-sec.)	Short Running Job (10 sec.)	Long Running Job (2 min.)
100	<b>24%</b>	<b>14%</b>	<b>4%</b>
500	<b>21%</b>	<b>47%</b>	<b>23%</b>
1000	<b>18%</b>	<b>57%</b>	<b>28%</b>

Agent Process Handle Count Improvement						
Agent Job Limit (Concurrent Jobs)	Fast Running Jobs (sub-sec.)		Short Running Job (10 sec.)		Long Running Job (2 min.)	
	MAX.	AVG.	MAX.	AVG.	MAX.	AVG.
100	<b>23%</b>	<b>19%</b>	<b>49%</b>	<b>43%</b>	<b>96%</b>	<b>96%</b>
500	<b>12%</b>	<b>3%</b>	<b>67%</b>	<b>83%</b>	<b>87%</b>	<b>80%</b>
1000	<b>43%</b>	<b>20%</b>	<b>76%</b>	<b>91%</b>	<b>87%</b>	<b>89%</b>

# TES Windows Agent Performance

## Summary on Execution Time (3.0.0.32 Vs 2.3.0.09)



# TES Windows Agent Performance

## Execution Time Improvement (%) (3.0.0.32 Vs 2.3.0.09)

