

A CIFS/SMB/SMBV2 File Server Tool for Capacity Planning and Performance Troubleshooting

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All information is subject to change.

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- ❑ What is “FSCT”?
- ❑ Sample Topology and Configurations
- ❑ Firewall Configuration
- ❑ Workloads and Scenarios
- ❑ HomeFolders Workload and Scenarios
- ❑ Custom Workloads
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- ❑ Sample “FSCT” Results and Charts
- ❑ Reporting “FSCT” Results
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- ❑ “FSCT” with non-Windows Servers
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What is “FSCT”?

- ❑ A tool for CIFS/SMB/SMB2 File Servers focused on
 - ❑ Capacity planning
 - ❑ Identifying bottlenecks

- ❑ Targeted at
 - ❑ IT Professionals
 - ❑ Storage Solution Providers

- ❑ Results include
 - ❑ Maximum number of users for a server configuration
 - ❑ Throughput (in scenarios per second) for a server configuration
 - ❑ Scenario response time
 - ❑ Performance counters for servers and clients

- ❑ Why?
 - ❑ Customer requests for a capacity planning tool

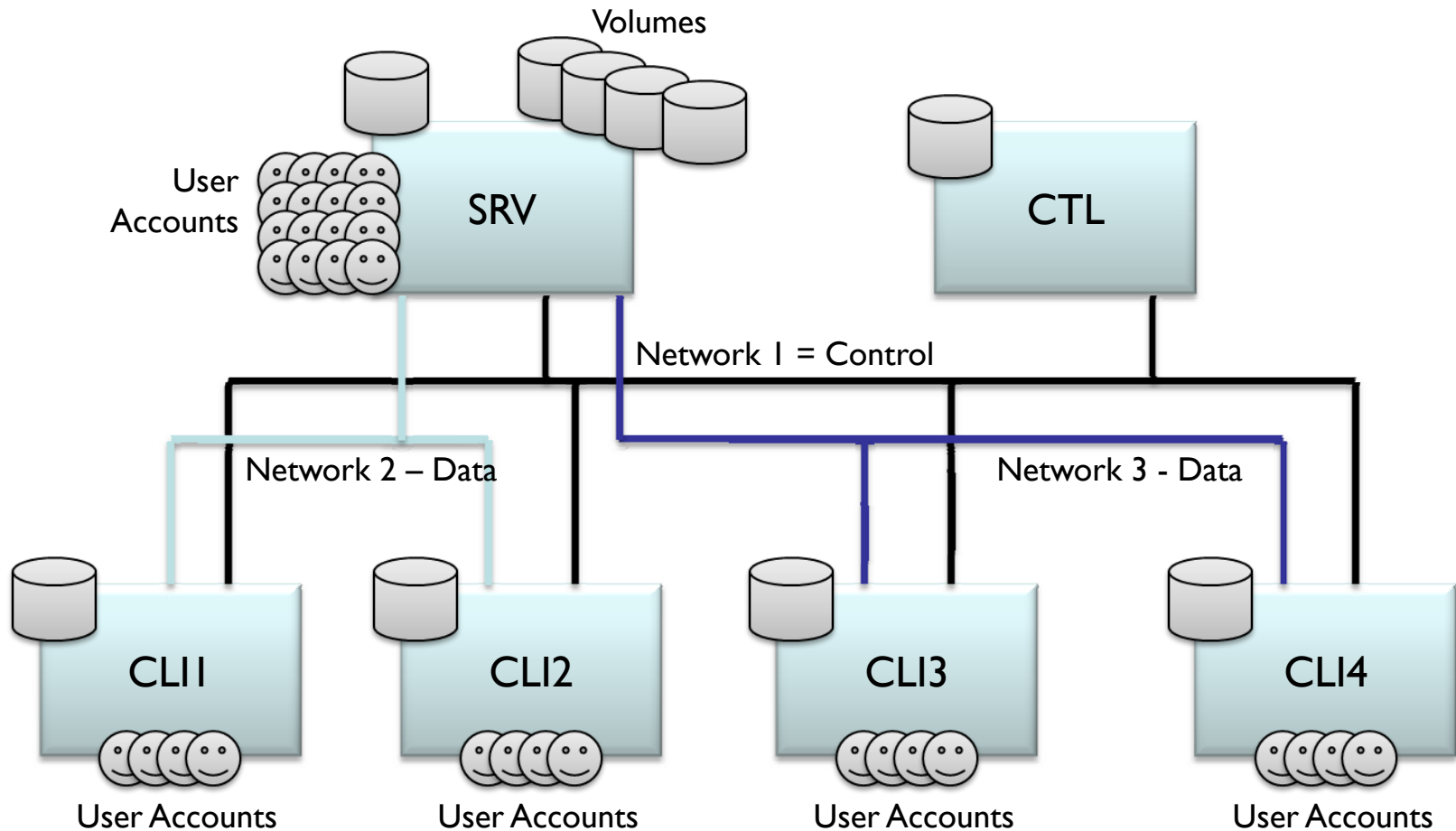
“FSCT” History

- ❑ Origins
 - ❑ Internal tool developed by the Windows Server Performance Team
 - ❑ Useful for capacity planning and identifying bottlenecks
 - ❑ Used internally every day in Windows Server Labs
 - ❑ Focused on server quality gates and regression testing

- ❑ Highlights
 - ❑ Simulates multiple TCP connections and sessions
 - ❑ Each client test machine simulates multiple users
 - ❑ Exercises certain sequences of file operations to simulate applications

- ❑ Improvements in the public release
 - ❑ Simplified command line interface
 - ❑ Workload updated
 - ❑ Documentation

“FSCT” Sample Topology



“FSCT” Configurations

- ❑ **Minimum Configuration**
 - ❑ 1 **Server** (test subject, any OS supporting CIFS, SMB or SMB2)
 - ❑ 1 **Client** (computer running supported Windows OS)
 - ❑ 1 **Controller** (computer running supported Windows OS)
- ❑ **Sample Configuration**
 - ❑ 1 **Server**
 - ❑ 2 Cores
 - ❑ 6 volumes on 12 spindles
 - ❑ 4 NICs (GbE) for Client traffic + 1 NIC for controller traffic
 - ❑ 8 **Clients**
 - ❑ 1 Core
 - ❑ Multiple, server-class clients to stress a more capable server
 - ❑ 1 NIC for Controller traffic + 1 NIC for Server traffic
 - ❑ 1 **Controller**
 - ❑ 1 Network dedicated for controller traffic to clients and server
- ❑ **Maximum Tested Configuration (No hard limits)**
 - ❑ 1 **Server**
 - ❑ 16 Cores, 32GB RAM
 - ❑ 100+ spindles on a disk array
 - ❑ 4 NICs for Client traffic + 1 NIC for controller traffic
 - ❑ 120 **Clients**
 - ❑ 1 **Controller**

Firewall Configuration

- ❑ Server and Controller ports
 - ❑ Need ports 139 and 445 open for SMB requests from Clients
- ❑ Clients ports
 - ❑ Need ports 5000 and 5001 for job requests from Controller (only for the Client network interface connected to the Controller)
- ❑ Performance counters
 - ❑ Additional configuration needed for performance queries on both Server (only if running Windows) and Clients
 - ❑ Enable remote registry service
 - ❑ Enable file and printer sharing in the firewall
 - ❑ You can skip this, but the controller won't report performance counters in the results
 - ❑ Verify the configuration by running PERFMON on the Controller to remotely monitor the Server and Client

“FSCT” Workloads and Scenarios

- ❑ A **scenario** is a basic user action being simulated, like deleting a file from the command line, copying a file with Windows Explorer or opening a file in Microsoft Word.
- ❑ A **file set** is required by each scenario.
- ❑ A **workload** is a set of well-defined scenarios and file sets.
- ❑ The workload definition is provided in the form of XML files, including the parameters required for each scenario, like the frequency in which they should occur and the file set used.
- ❑ The actual code simulating a scenario is provided in the form of DLL files
- ❑ Only one workload is provided with “FSCT” version 0.2 Beta, called HomeFolders.

How HomeFolders was created

- ❑ Captured data
 - ❑ Event Tracing for Windows (ETW) on servers, client API traces, network traces
 - ❑ From real, heavily accessed file servers and their clients
 - ❑ Worked with IT Admins to enable tracing for a few minutes each hour over many months

- ❑ Analyzed data
 - ❑ Request types distribution
 - ❑ Parameters distribution
 - ❑ File set characteristics
 - ❑ Connection characteristics

- ❑ Created and tested the workload
 - ❑ Create scenarios, create file sets and define “runs per user per hour”
 - ❑ Traced and verified to approximate the key findings from the traces

“FSCT” HomeFolders Scenarios

Scenario	Runs per user per hour	File set
CmdLineNavigate.dll	30	static_dirs.xml
CmdLineFileDownload.dll	75	static.xml
CmdLineFileUpload.dll	75	new.xml
CmdLineFileDelete.dll	15	volatile.xml
ExplorerNavigate.dll	30	static_dirs.xml
ExplorerDragDropFileDownload.dll	45	static.xml
ExplorerDragDropFileUpload.dll	45	new.xml
ExplorerFileDelete.dll	12	volatile.xml
ExplorerSelect.dll	30	static.xml
WordFileOpen.dll	15	static.xml
WordFileClose.dll	15	static.xml
WordEditAndSave.dll	12	volatile.xml

“FSCT” HomeFolders Workload

```
<?xml version="1.0" encoding="utf-8"?>
<Workload>
  <Scenarios>
    <Scenario name="CmdLineNavigate.dll">
      <RunsPerUserPerHour>30</RunsPerUserPerHour>
      <FilesetParameters>
        <Parameter name="filelist">static_dirs.xml</Parameter>
      </FilesetParameters>
    </Scenario>
    <Scenario name="CmdLineFileDownload.dll">
      <RunsPerUserPerHour>75</RunsPerUserPerHour>
      <FilesetParameters>
        <Parameter name="filelist">static.xml</Parameter>
      </FilesetParameters>
    </Scenario>
  </Scenarios>
</Workload>
```

[Lots of additional scenarios defined here](#)

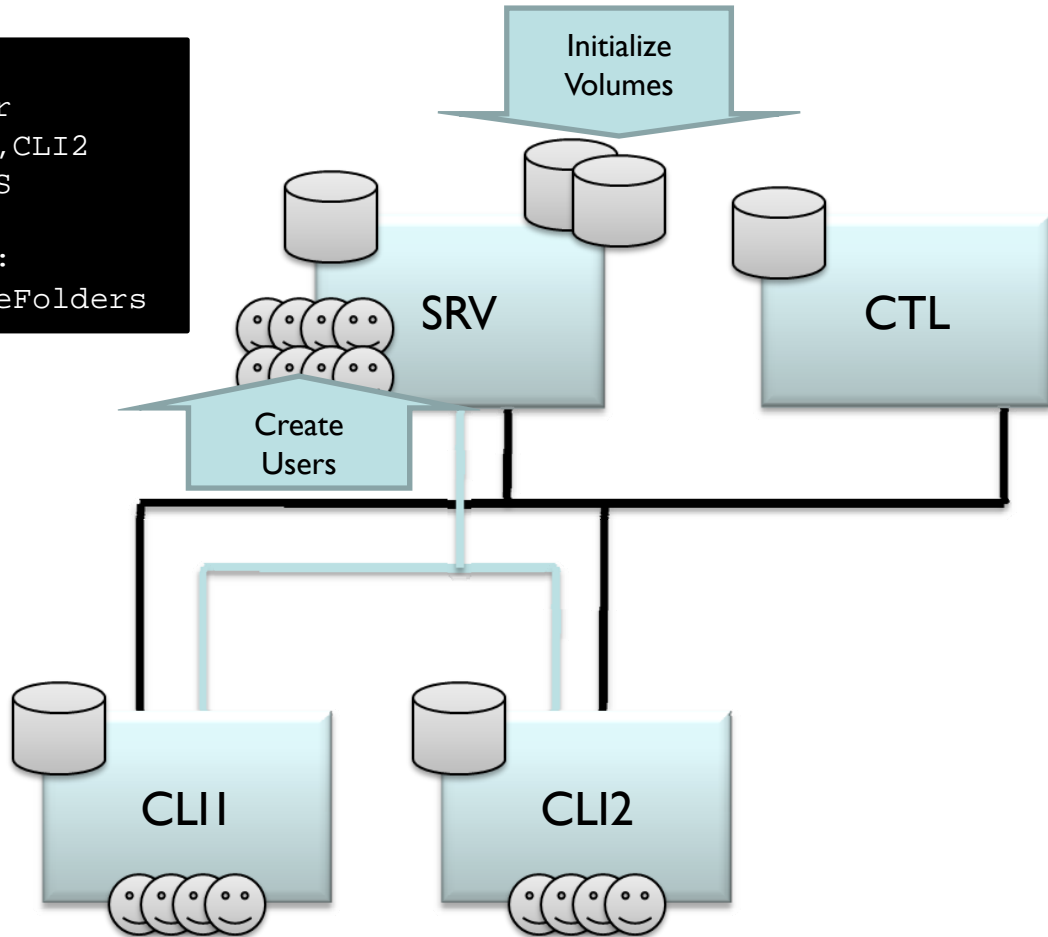
```
<Scenario name="WordEditAndSave.dll">
  <RunsPerUserPerHour>12</RunsPerUserPerHour>
  <FilesetParameters>
    <Parameter name="filelist">volatile.xml</Parameter>
  </FilesetParameters>
</Scenario>
</Scenarios>
<WarmupTime>30</WarmupTime>
</Workload>
```

“FSCT” Custom Workloads

- ❑ As of “FSCT” version 0.2 beta, we only provide the HomeFolders workload, which only includes scenarios related to Microsoft applications
- ❑ The “FSCT” tool and the HomeFolders workload were developed independently
- ❑ The “FSCT” architecture allows for the creation of custom workloads and scenarios, as well as tweaking the existing workloads.

“FSCT” Prepare

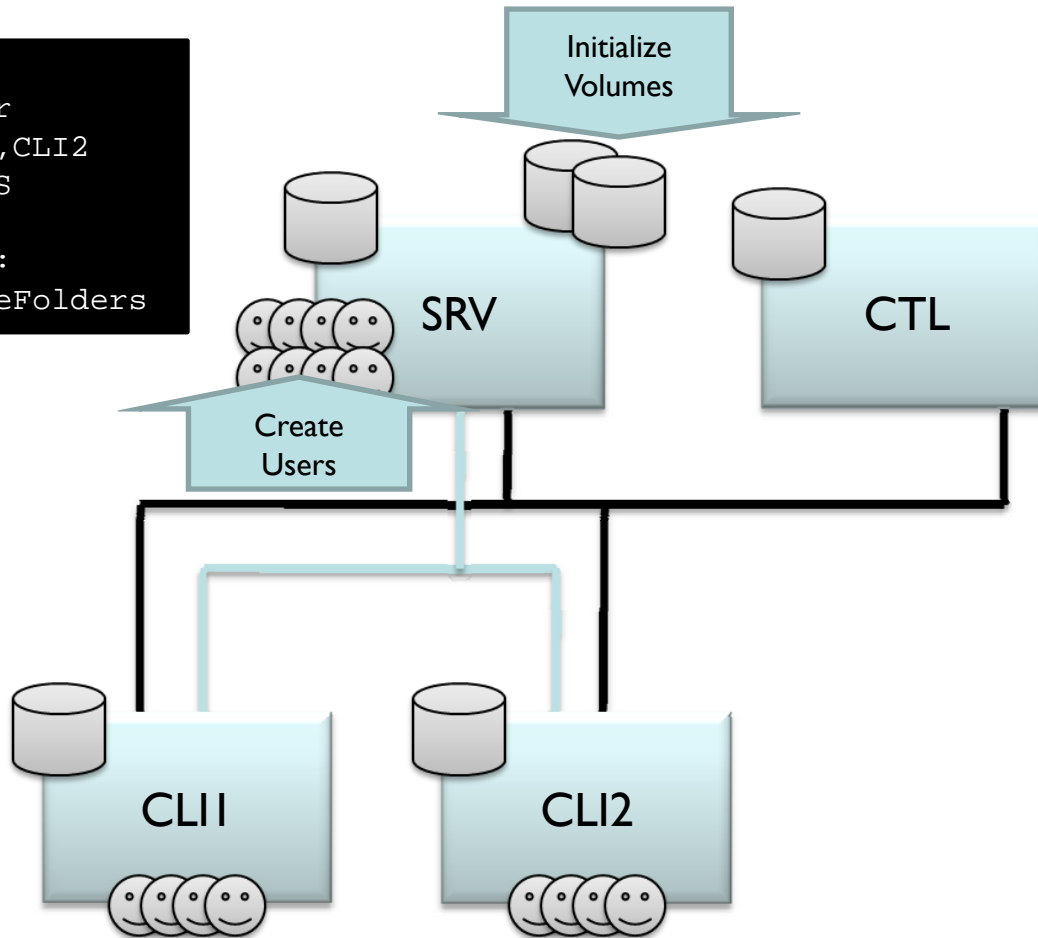
```
FSCT
prepare server
/clients CLI1,CLI2
/password PASS
/users 1000
/volumes E:,F:
/workload HomeFolders
```



“FSCT” Prepare

```
FSCT
prepare server
/clients CLI1,CLI2
/password PASS
/users 1000
/volumes E:,F:
/workload HomeFolders
```

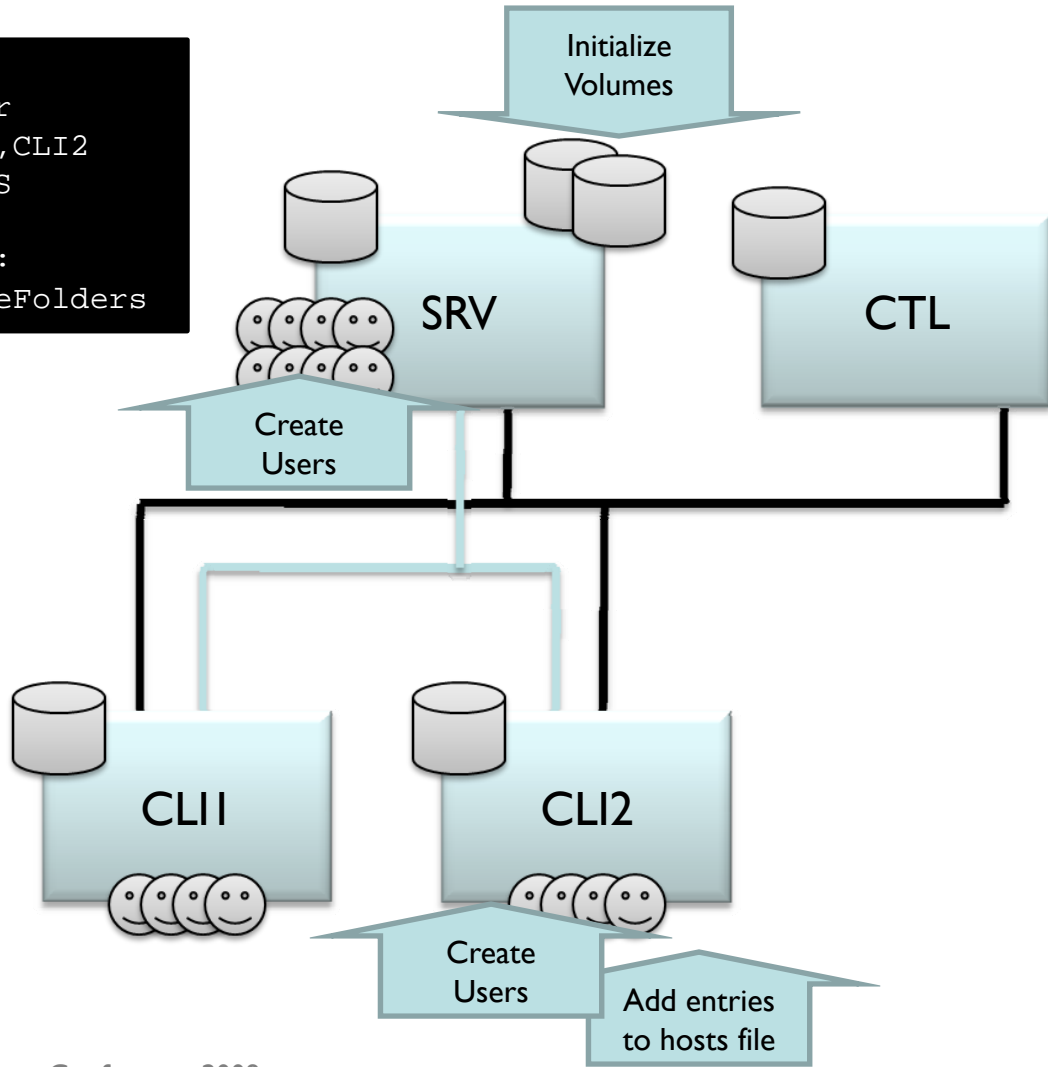
```
FSCT
prepare controller
/clients CLI1,CLI2
/volumes E:,F:
```



“FSCT” Prepare

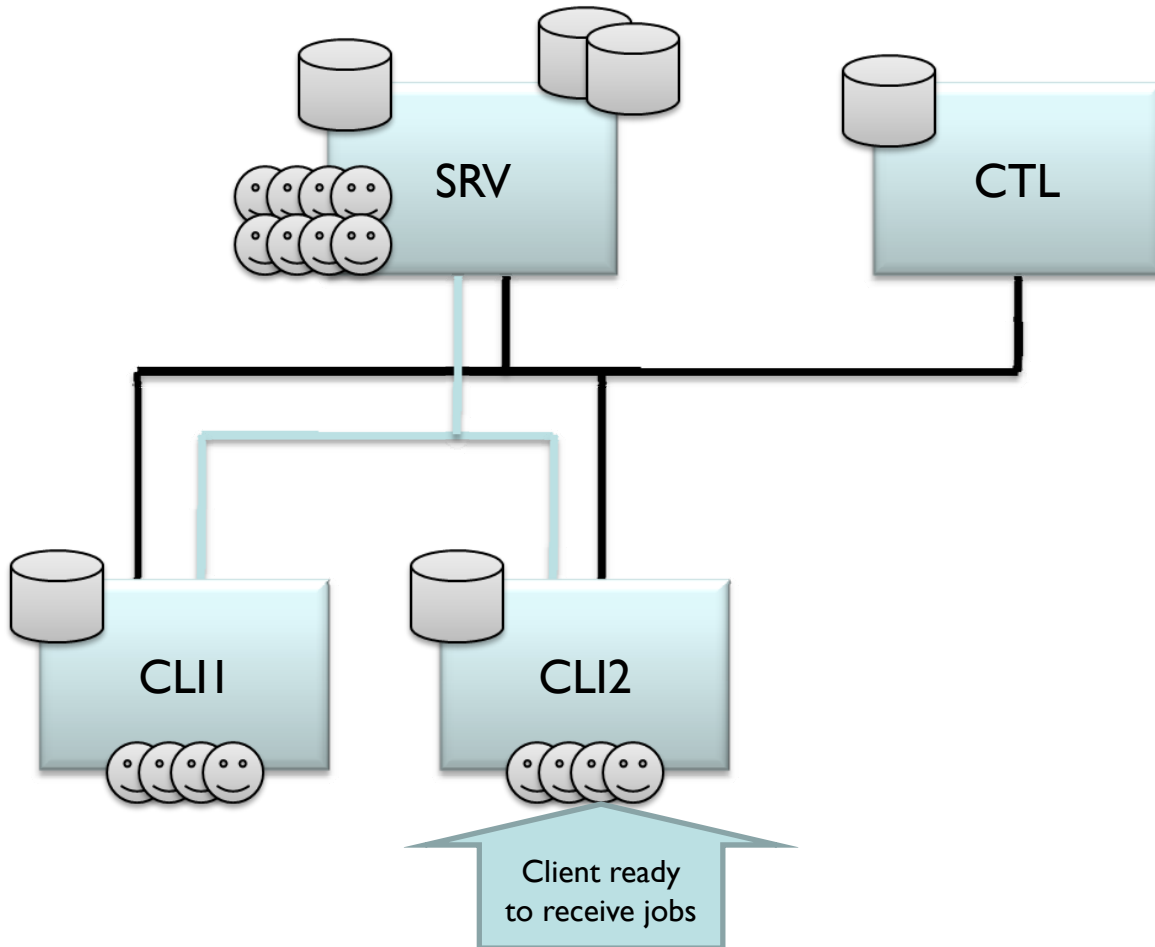
```
FSCT
prepare server
/clients CLI1,CLI2
/password PASS
/users 1000
/volumes E:,F:
/workload HomeFolders
```

```
FSCT
prepare controller
/clients CLI1,CLI2
/volumes E:,F:
```



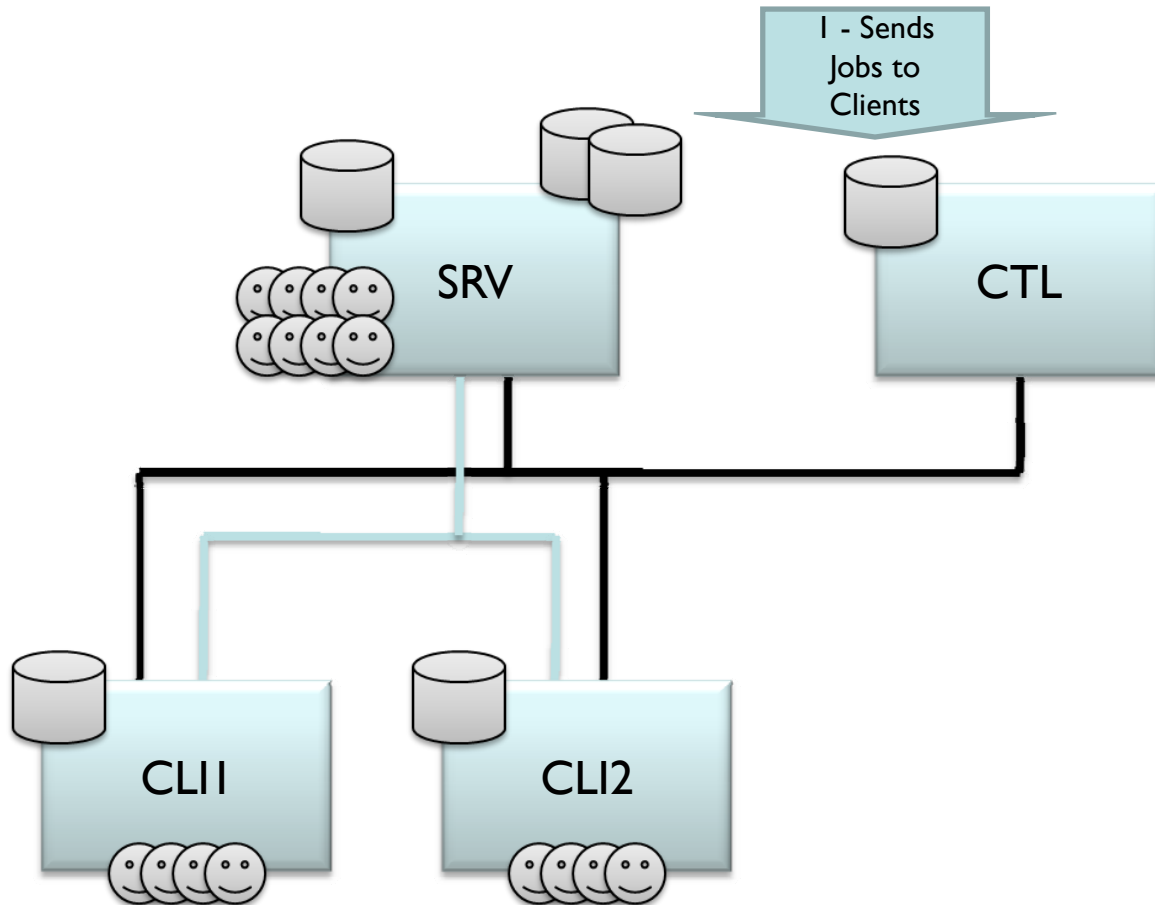
```
FSCT
prepare client
/server SRV
/password PASS
/users 1000
/server_ip 10.1.1.1
```


“FSCT” Run



```
FSCT
run client
/controller CTL
/server SRV
/password PASS
```

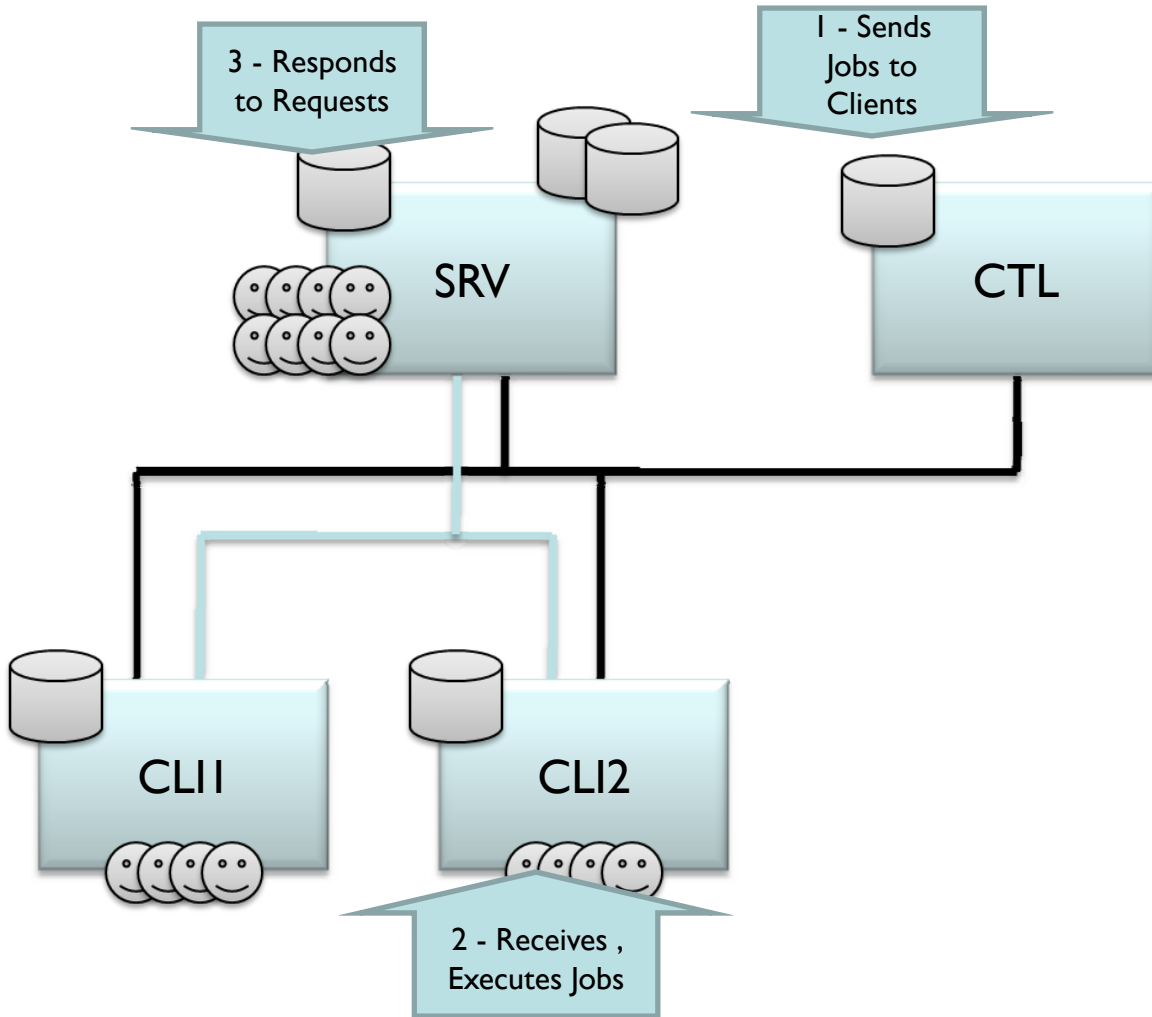
“FSCT” Run



```
FSCT
run controller
/server SRV
/password PASS
/volumes E:,F:
/clients CLI1,CLI2
/min_users 100
/max_users 400
/step 100
/duration 300
/workload HomeFolders
```

```
FSCT
run client
/controller CTL
/server SRV
/password PASS
```

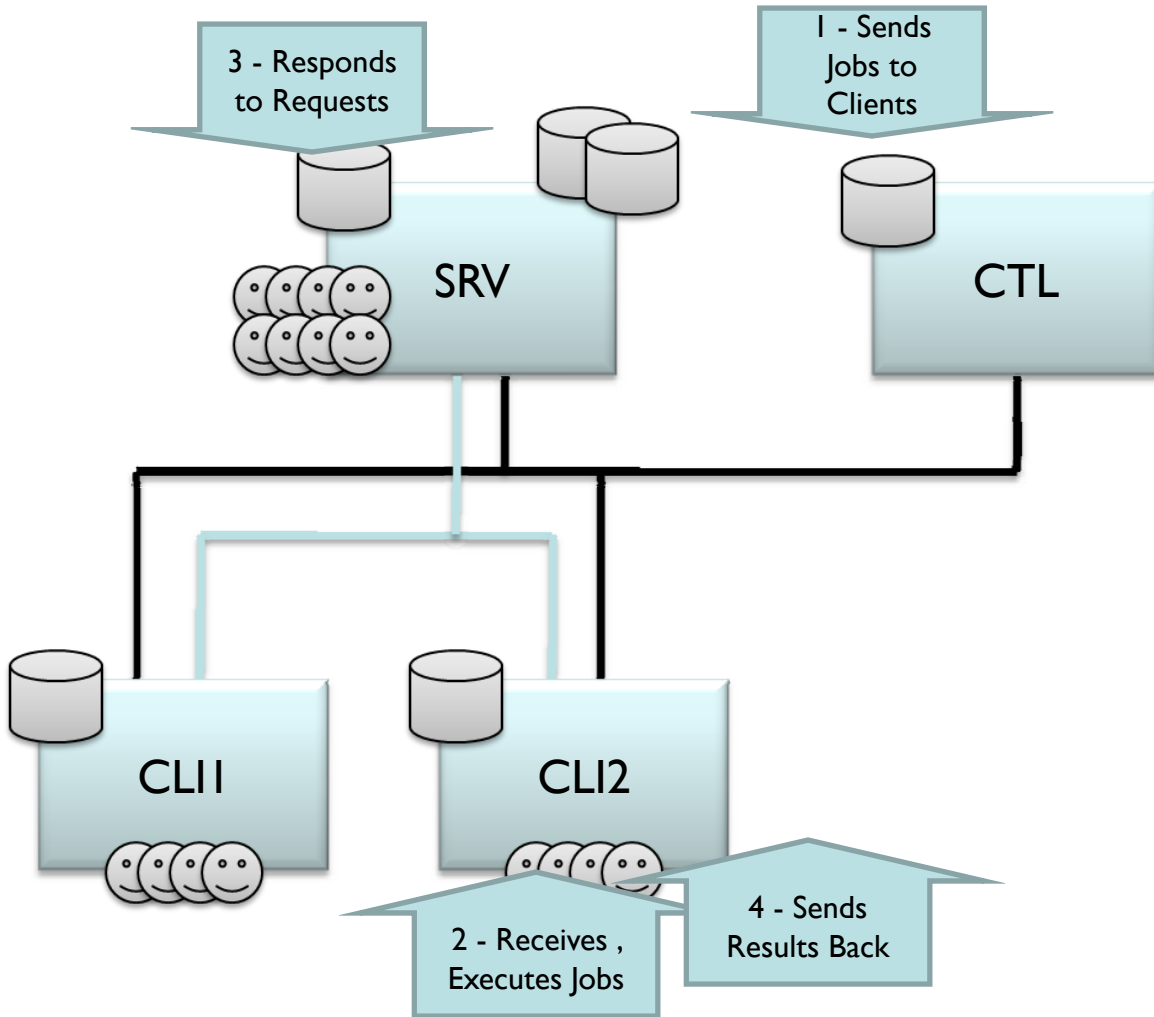
“FSCT” Run



```
FSCT
run controller
/server SRV
/password PASS
/volumes E:,F:
/clients CLI1,CLI2
/min_users 100
/max_users 400
/step 100
/duration 300
/workload HomeFolders
```

```
FSCT
run client
/controller CTL
/server SRV
/password PASS
```

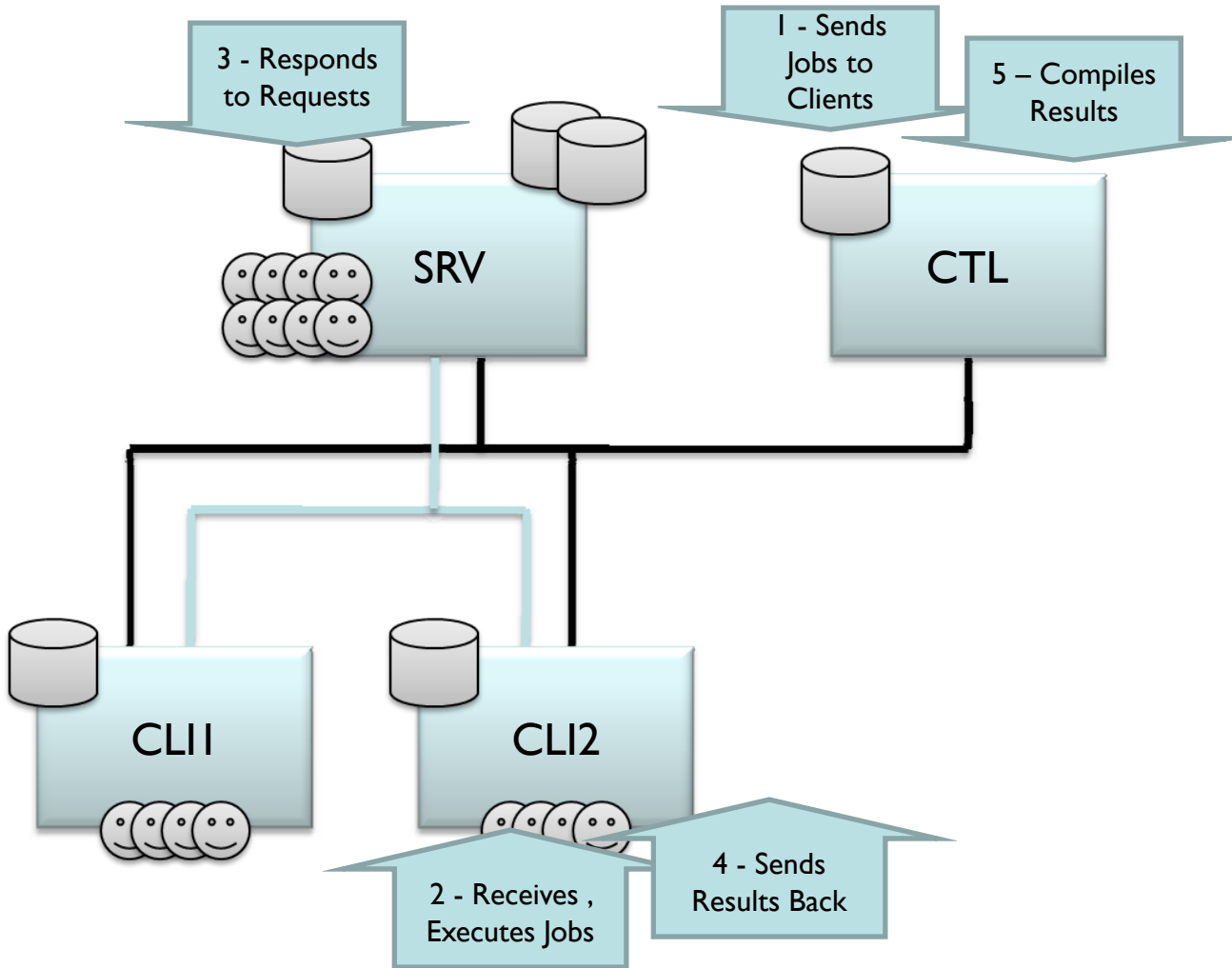
“FSCT” Run



```
FSCT
run controller
/server SRV
/password PASS
/volumes E:,F:
/clients CLI1,CLI2
/min_users 100
/max_users 400
/step 100
/duration 300
/workload HomeFolders
```

```
FSCT
run client
/controller CTL
/server SRV
/password PASS
```

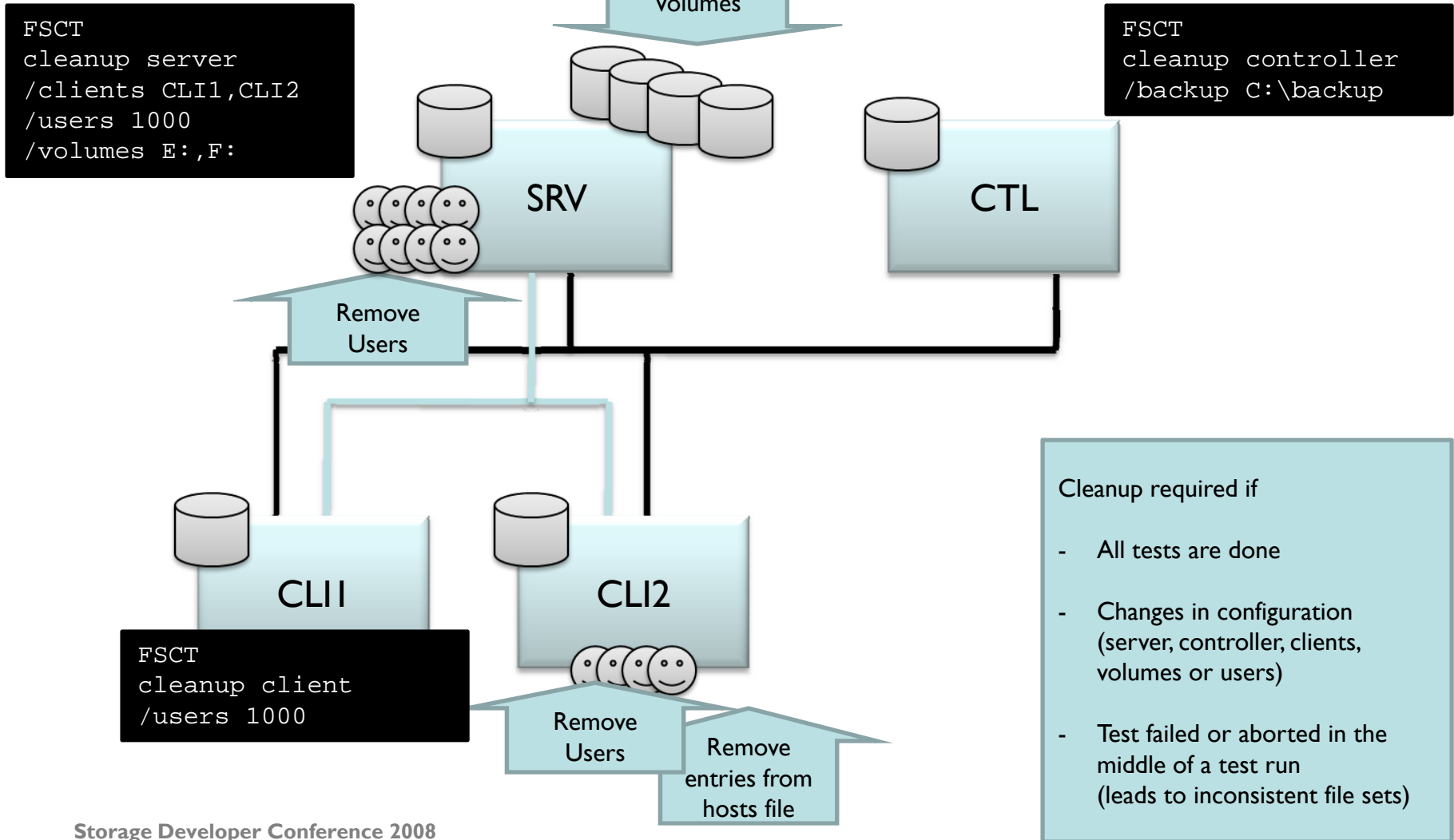
“FSCT” Run



```
FSCT
run controller
/server SRV
/password PASS
/volumes E:,F:
/clients CLI1,CLI2
/min_users 100
/max_users 400
/step 100
/duration 300
/workload HomeFolders
```

```
FSCT
run client
/controller CTL
/server SRV
/password PASS
```

“FSCT” Cleanup



“FSCT” Results (100 to 400 users, step 100)

```
*** Results
Users  Overload  Throughput  Errors  Duration
100    0.00%    11         false   300516
200    0.00%    22         false   300281
300    0.00%    33         false   300250
400    37.36%   33         true    306265

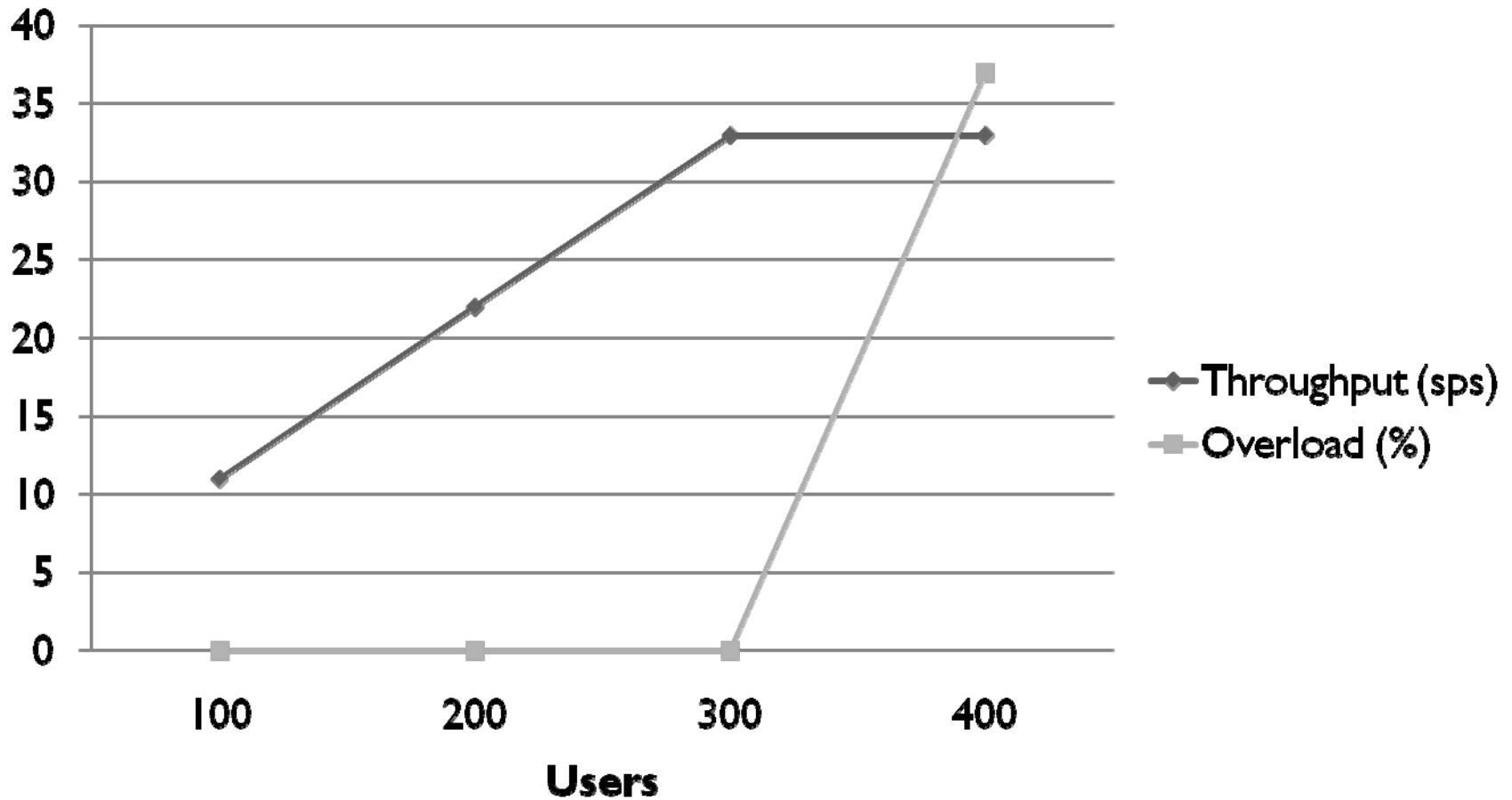
*** Test's information
FSCT version: 0.2
workload: HomeFolders
Time: 2008/07/17 15:10
```

Number of
Users

Throughput
(scenarios per
second)

Overload at 400 users. Maximum is between 300 and 400.
Maximum throughput around 33 scenarios per second

“FSCT” Results (chart, 100 to 400 users)



“FSCT” Results (performance data)

```
FSCT_data.txt - Notepad
File Edit Format View Help
*** Results
Users Overload Throughput Errors Duration
100 0.00% 11 false 300516
200 0.00% 22 false 300281
300 0.00% 33 false 300250
400 37.36% 33 true 306265

*** Test's information
FSCT version: 0.2
Workload: HomeFolders
Time: 2008/07/17 15:10
```

Number of Users

Throughput (scenarios per second)

Performance Data

```
FSCT_data.txt - Notepad
File Edit Format View Help
*** Server resources
Users CPU Diskwrite DiskRead SmbSrvRecv SmbSrvSend Memory avg(
100 1.8% 2246220.0 1708665.0 8686.8 2736492.8 1372.3
200 3.9% 4597593.5 4742379.0 10236.9 5408253.5 1333.0
300 6.8% 7023339.5 7230970.5 22225.5 8290379.0 1282.8
400 5.9% 6738196.5 7706828.5 24386.7 8519644.0 1216.4

*** client Resources (100 users)
Name CPU Diskwrite DiskRead SmbSrvRecv SmbSrvSend Memory
fsct-client1 1.1% 2021.6 0.0 0.0 9323.9 1553.1
fsct-client2 1.1% 2583.3 0.0 0.0 9323.2 1549.0

*** client Resources (200 users)
Name CPU Diskwrite DiskRead SmbSrvRecv SmbSrvSend Memory
fsct-client1 2.1% 1733.0 0.0 0.0 9375.3 1532.1
fsct-client2 2.1% 1781.2 0.0 0.0 9375.6 1532.8

*** client Resources (300 users)
Name CPU Diskwrite DiskRead SmbSrvRecv SmbSrvSend Memory
fsct-client1 3.8% 2722.9 133.1 0.0 8687.9 1509.3
fsct-client2 4.0% 2926.0 133.1 0.0 8655.1 1508.9

*** client Resources (400 users)
Name CPU Diskwrite DiskRead SmbSrvRecv SmbSrvSend Memory
fsct-client1 8.6% 4634.7 0.0 0.0 5824.6 1466.9
fsct-client2 7.2% 4561.9 0.0 0.0 5503.6 1460.0
```

“FSCT” Results (300 to 400 users, step 20)

Performance Data

```
FSCT_data.txt - Notepad
File Edit Format View Help

*** Results
Users Overload Throughput Errors Duration
300 0.00% 33 false 300390
320 0.00% 35 false 300734
340 0.00% 37 false 300766
360 0.01% 40 false 300891
380 19.59% 35 true 304735
400 20.06% 37 true 305047

*** Test's information
FSCT version: 0.2
Workload: HomeFolders
```

Number of Users

Throughput (scenarios per second)

Overload and errors at 380 users
Maximum is between 360 and 380

Maximum throughput should be
around 40 scenarios per second

```
FSCT_data.txt - Notepad
File Edit Format View Help

*** Server resources
Users CPU Diskwrite DiskRead SmbSrvRecv SmbSrvSend Memory
300 5.9% 6905370.5 7218319.5 18762.1 8246038.5 1264.2
320 6.2% 7419392.5 7866522.0 56105.0 8678055.0 1250.0
340 6.5% 7592467.5 8485026.0 17989.9 9545472.0 1241.5
360 6.6% 8192750.5 9240289.0 20908.4 10234794.0 1230.5
380 6.5% 7448062.5 8811267.0 62807.8 9775159.0 1215.3
400 6.7% 7946159.5 8652636.0 18255.7 9756556.0 1190.8

*** client Resources (300 users)
Name CPU Diskwrite DiskRead SmbSrvRecv SmbSrvSend Memory
fsct-client1 4.0% 88075.3 77187.8 0.0 8817.8 1510.8
fsct-client2 3.5% 90658.7 82873.4 0.0 8818.3 1492.7

*** client Resources (320 users)
Name CPU Diskwrite DiskRead SmbSrvRecv SmbSrvSend Memory
fsct-client1 3.8% 2259.9 11.8 0.0 8892.5 1497.3
fsct-client2 4.2% 2186.0 11.8 0.0 8911.7 1480.2

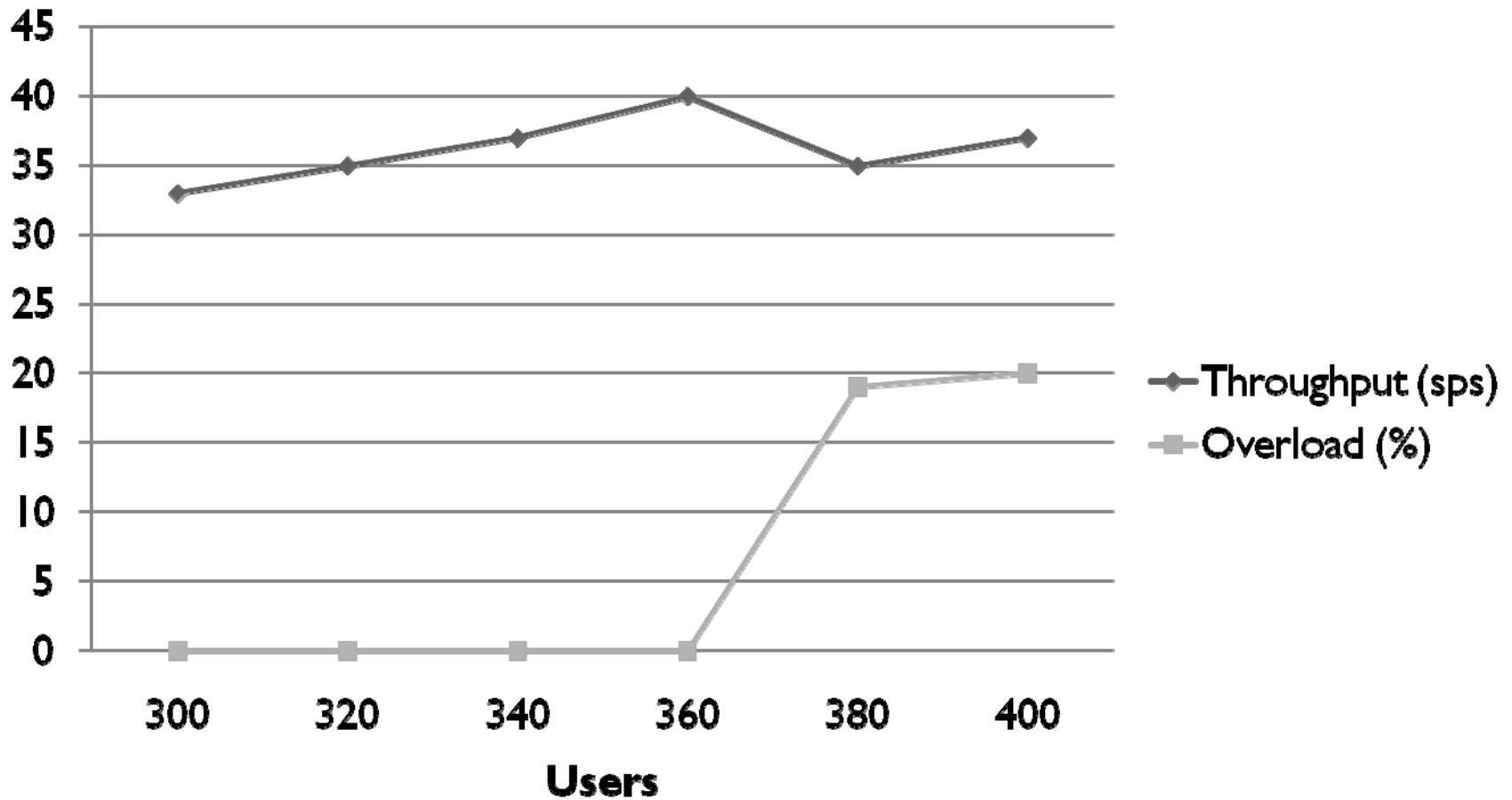
*** client Resources (340 users)
Name CPU Diskwrite DiskRead SmbSrvRecv SmbSrvSend Memory
fsct-client1 4.6% 2215.8 0.0 0.0 8797.3 1485.7
fsct-client2 4.6% 2341.9 0.0 0.0 8815.1 1466.2

*** client Resources (360 users)
Name CPU Diskwrite DiskRead SmbSrvRecv SmbSrvSend Memory
fsct-client1 6.3% 2811.1 0.0 0.0 8205.7 1486.9
fsct-client2 5.3% 2544.4 0.0 0.0 8133.4 1466.7

*** client Resources (380 users)
Name CPU Diskwrite DiskRead SmbSrvRecv SmbSrvSend Memory
fsct-client1 6.9% 2849.4 0.0 0.0 6358.9 1455.2
fsct-client2 8.4% 1517.0 0.0 0.0 6128.9 1433.3

*** client Resources (400 users)
Name CPU Diskwrite DiskRead SmbSrvRecv SmbSrvSend Memory
fsct-client1 6.6% 4054.7 0.0 0.0 6491.8 1435.6
fsct-client2 7.1% 3872.4 0.0 0.0 6246.3 1412.5
```

“FSCT” Results (Chart, 300 to 400 users)



“FSCT” Results (360 to 380 users, step 2)

FSCT_data.txt - Notepad

```
File Edit Format View Help
```

*** Results

Users	Overload	Throughput	Errors	Duration
360	0.80%	39	false	302859
362	1.30%	40	false	302406
364	0.33%	40	true	302031
366	0.78%	40	true	302281
368	0.97%	40	true	302828
370	3.67%	39	true	303469
372	3.28%	40	true	304437
374	3.35%	39	true	304266
376	7.23%	39	true	305047
378	4.35%	39	true	304343
380	9.06%	38	true	304969

*** Test's information
FSCT version: 0.2
Workload: HomeFolders
Time: 2008/07/17 16:25

Number of Users

Throughput (scenarios per second)

Overload and errors at 364 users
Maximum is 362 users

Maximum throughput is
40 scenarios per second

FSCT_data.txt - Notepad

```
File Edit Format View Help
```

*** Test's information
FSCT version: 0.2
Workload: HomeFolders
Time: 2008/07/17 16:25

*** Performance Counters

- 1 - \Processor(_Total)\% Processor Time
- 2 - \PhysicalDisk(_Total)\Disk write Bytes/sec
- 3 - \PhysicalDisk(_Total)\Disk Read Bytes/sec
- 4 - \Server\Bytes Received/sec
- 5 - \Server\Bytes Transmitted/sec
- 6 - \Memory\Available Mbytes
- 7 - \Processor(_Total)\% Privileged Time
- 8 - \Processor(_Total)\% User Time
- 9 - \System\Context Switches/sec
- 10 - \System\System Calls/sec

*** Server resources

Users	CPU	Diskwrite	DiskRead	SmbSrvRecv	SmbSrvSend	Memory	avg(7)	avg(8)	avg(9)	avg(10)
360	7.0%	7943396.5	9227648.0	45343.1	10219480.0	1223.1	6.8	0.2	3101.5	3208.4
362	6.6%	8143709.0	9279982.0	33566.3	10294723.0	1207.0	6.5	0.1	3289.2	3319.1
364	6.8%	8455786.0	9387431.0	55081.3	10540658.0	1215.0	6.7	0.1	2722.7	3217.6
366	7.0%	8528137.0	9124403.0	25940.5	10386647.0	1209.7	6.8	0.2	2375.9	3179.8
368	6.9%	8562966.0	9208915.0	65664.4	10341911.0	1211.3	6.8	0.2	2803.5	3238.4
370	7.0%	8316443.5	9442966.0	28748.6	10560779.0	1208.5	6.8	0.2	2357.0	3171.7
372	7.0%	8057264.0	9486244.0	38328.9	10679047.0	1201.8	6.8	0.2	2315.1	3173.4
374	7.0%	8039429.5	9492384.0	25399.5	10598169.0	1200.9	6.8	0.2	2196.1	3129.8
376	7.3%	8383506.5	9201380.0	72542.8	10296961.0	1193.5	7.2	0.2	2209.5	3150.3
378	7.0%	8380149.0	9343193.0	48291.5	10516857.0	1183.0	6.9	0.1	2186.1	3047.2
380	6.9%	7831342.5	9276970.0	25028.7	10323223.0	1198.1	6.7	0.2	2252.1	3027.5

*** Client Resources (360 users)

Name	CPU	Diskwrite	DiskRead	SmbSrvRecv	SmbSrvSend	Memory	avg(7)	avg(8)	avg(9)	avg(10)
Fsct-client1	7.6%	3177.5	0.0	0.0	7897.9	1474.4	7.3	0.3	3838.6	2529.0
Fsct-client2	6.6%	2829.2	0.0	0.0	7844.8	1464.9	6.4	0.2	3905.5	2500.6

*** Client Resources (362 users)

Name	CPU	Diskwrite	DiskRead	SmbSrvRecv	SmbSrvSend	Memory	avg(7)	avg(8)	avg(9)	avg(10)
Fsct-client1	5.8%	2523.6	0.0	0.0	7934.7	1463.0	5.6	0.2	3875.0	2365.6
Fsct-client2	5.8%	2816.2	0.0	0.0	7908.3	1455.9	5.5	0.3	3870.3	2513.3

*** Client Resources (364 users)

Name	CPU	Diskwrite	DiskRead	SmbSrvRecv	SmbSrvSend	Memory	avg(7)	avg(8)	avg(9)	avg(10)
Fsct-client1	5.7%	3666.7	0.0	0.0	7943.8	1452.6	5.4	0.3	4480.6	2669.3
Fsct-client2	5.4%	3238.2	0.0	0.0	7946.0	1441.8	5.2	0.2	4477.2	2633.3

*** Client Resources (366 users)

Name	CPU	Diskwrite	DiskRead	SmbSrvRecv	SmbSrvSend	Memory	avg(7)	avg(8)	avg(9)	avg(10)
Fsct-client1	5.9%	2622.5	0.0	0.0	7663.8	1456.0	5.6	0.2	4628.7	2511.7
Fsct-client2	7.3%	3035.2	0.0	0.0	7682.2	1448.7	7.0	0.3	4635.6	2508.6

*** Client Resources (368 users)

Name	CPU	Diskwrite	DiskRead	SmbSrvRecv	SmbSrvSend	Memory	avg(7)	avg(8)	avg(9)	avg(10)
Fsct-client1	7.5%	3380.4	0.0	0.0	7803.8	1456.1	7.2	0.3	4272.5	2539.1
Fsct-client2	6.1%	2228.4	0.0	0.0	7712.6	1448.3	5.9	0.2	4300.7	2514.1

*** Client Resources (370 users)

Name	CPU	Diskwrite	DiskRead	SmbSrvRecv	SmbSrvSend	Memory	avg(7)	avg(8)	avg(9)	avg(10)
Fsct-client1	7.5%	3380.4	0.0	0.0	7803.8	1456.1	7.2	0.3	4272.5	2539.1
Fsct-client2	6.1%	2228.4	0.0	0.0	7712.6	1448.3	5.9	0.2	4300.7	2514.1

perf.txt - Notepad

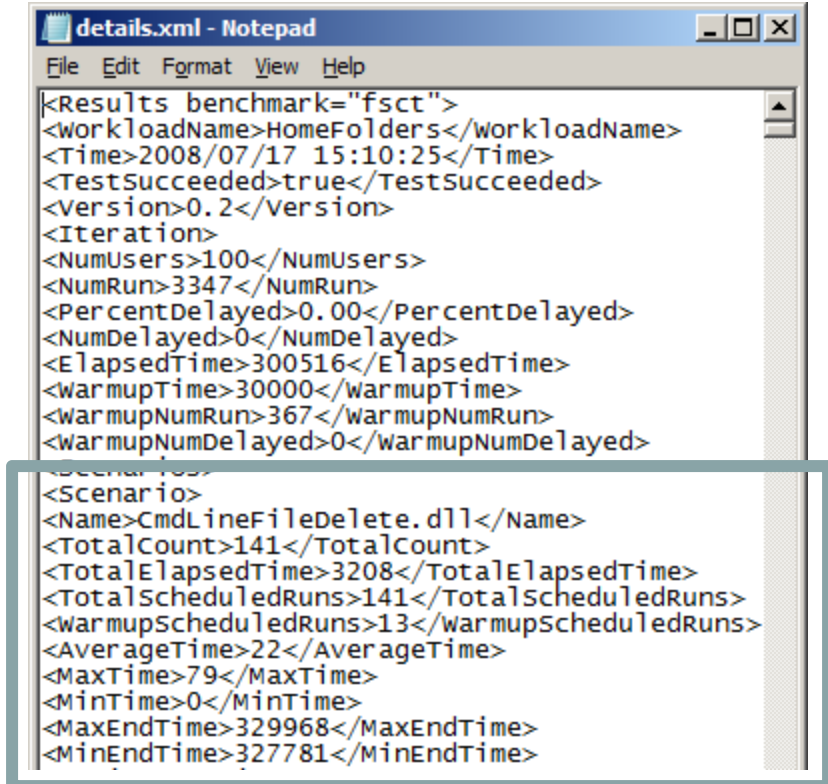
```
File Edit Format View Help
```

```
#interval 1
"\"Processor(_Total)\% Privileged Time"
"\"Processor(_Total)\% User Time"
"\"System\Context Switches/sec"
"\"System\System Calls/sec"
```

You can add your own performance counters

“FSCT” Results (details)

- Details in XML format
- Includes details about each individual scenario executed



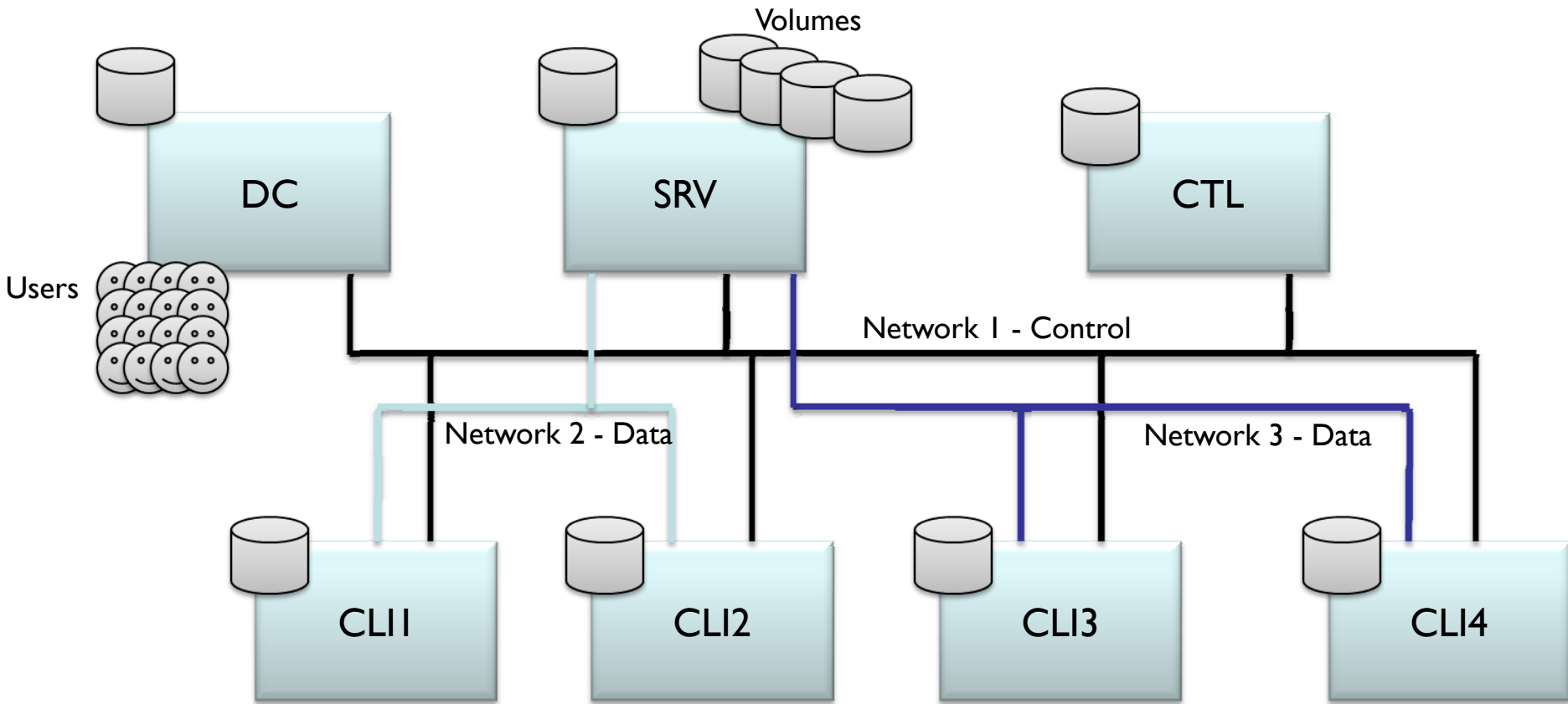
```
<Results benchmark="fsct">
  <workloadName>HomeFolders</workloadName>
  <Time>2008/07/17 15:10:25</Time>
  <TestSucceeded>>true</TestSucceeded>
  <Version>0.2</Version>
  <Iteration>
    <NumUsers>100</NumUsers>
    <NumRun>3347</NumRun>
    <PercentDelayed>0.00</PercentDelayed>
    <NumDelayed>0</NumDelayed>
    <ElapsedTime>300516</ElapsedTime>
    <warmupTime>30000</warmupTime>
    <warmupNumRun>367</warmupNumRun>
    <warmupNumDelayed>0</warmupNumDelayed>
  </Iteration>
  <Scenario>
    <Name>CmdLineFileDelete.d11</Name>
    <TotalCount>141</TotalCount>
    <TotalElapsedTime>3208</TotalElapsedTime>
    <TotalScheduledRuns>141</TotalScheduledRuns>
    <warmupScheduledRuns>13</warmupScheduledRuns>
    <AverageTime>22</AverageTime>
    <MaxTime>79</MaxTime>
    <MinTime>0</MinTime>
    <MaxEndTime>329968</MaxEndTime>
    <MinEndTime>327781</MinEndTime>
  </Scenario>
</Results>
```

Reporting “FSCT” results

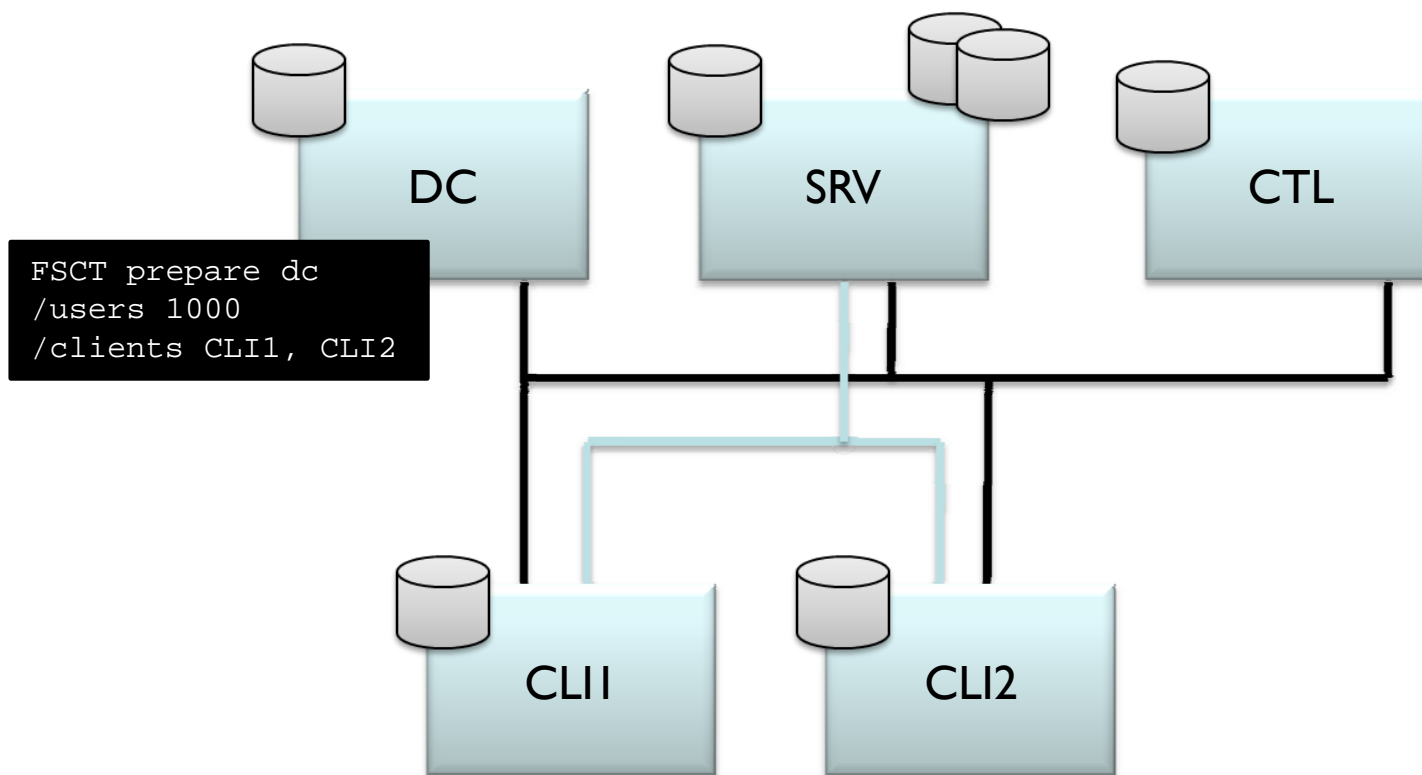
- ❑ “FSCT” provides a summary of the results, but it may not be in the format you want and it does not include all the information about your specific configuration.
- ❑ If you choose to compile a report with your results, include enough information about your configuration to reproduce your testing and achieve similar results with “FSCT”.
- ❑ Always include the full configuration of the server, clients and controller:
 - ❑ System: Model, CPU architecture/type, clock, number of CPUs/cores, memory, bus speed, BIOS version
 - ❑ Network: Number of NICs, switches, NIC model/type, bus type, speed, firmware and driver version
 - ❑ Disk Subsystem: Type, model, fabric, spindles, drive speeds, HBA, firmware and driver version
 - ❑ OS: Version, edition, architecture, service pack
 - ❑ “FSCT” command lines used for both “prepare” and “run”
 - ❑ Estimated cost of the system as configured
- ❑ Common results should also include
 - ❑ Maximum throughput for HomeFolders workload (in scenarios per second)
 - ❑ Maximum number of users for HomeFolders workload
 - ❑ Cost/throughput for HomeFolders workload (in dollars per scenarios per second)
 - ❑ Cost/maximum number of users for HomeFolders workload (in dollars per users without overload)
- ❑ **IMPORTANT:** The “FSCT” Beta End-User License Agreement and vendor agreements might limit your ability to disclose the results of your “FSCT” testing outside your company.

```
OS version is important!  
If a client is running  
Windows XP, for instance,  
you get SMBv1, not SMBv2.
```

“FSCT” with Active Directory



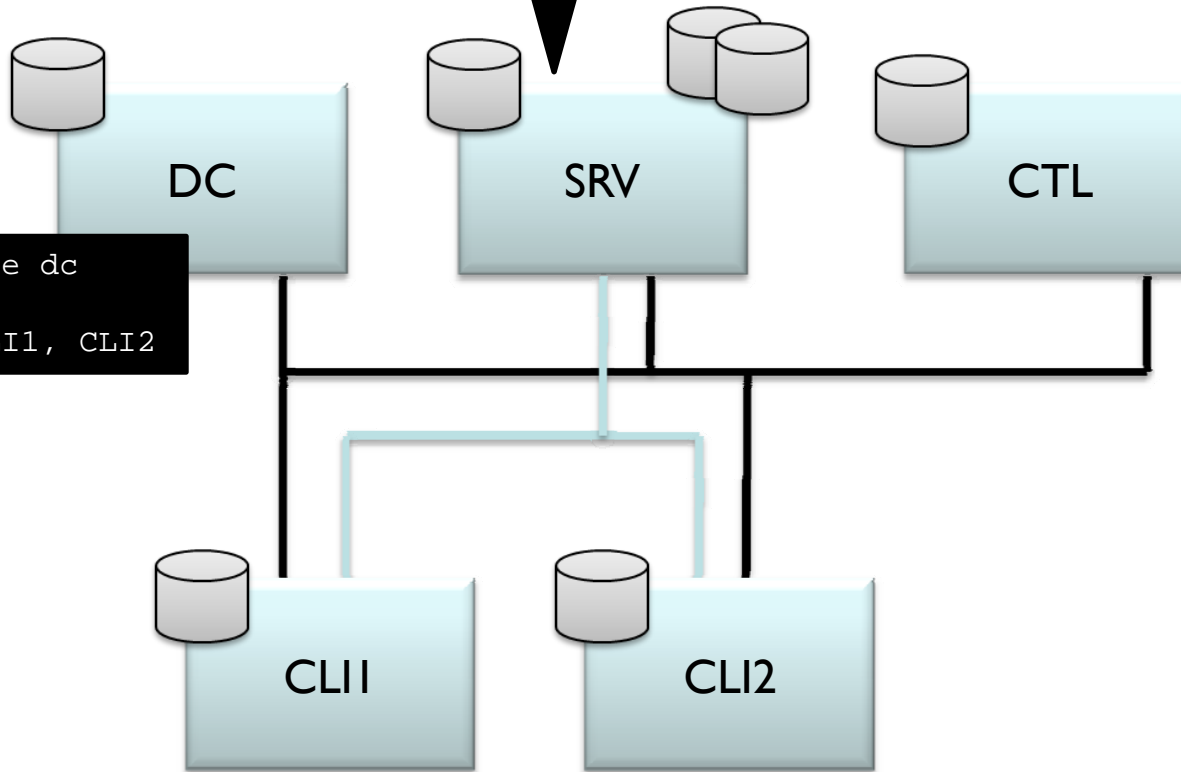
“FSCT” Prepare with AD



“FSCT” Prepare with AD

```
FSCT prepare server  
/clients CLI1,CLI2 /password PASS  
/users 1000 /domain contoso.msft  
/volumes E:,F: /workload HomeFolders
```

```
FSCT prepare dc  
/users 1000  
/clients CLI1, CLI2
```

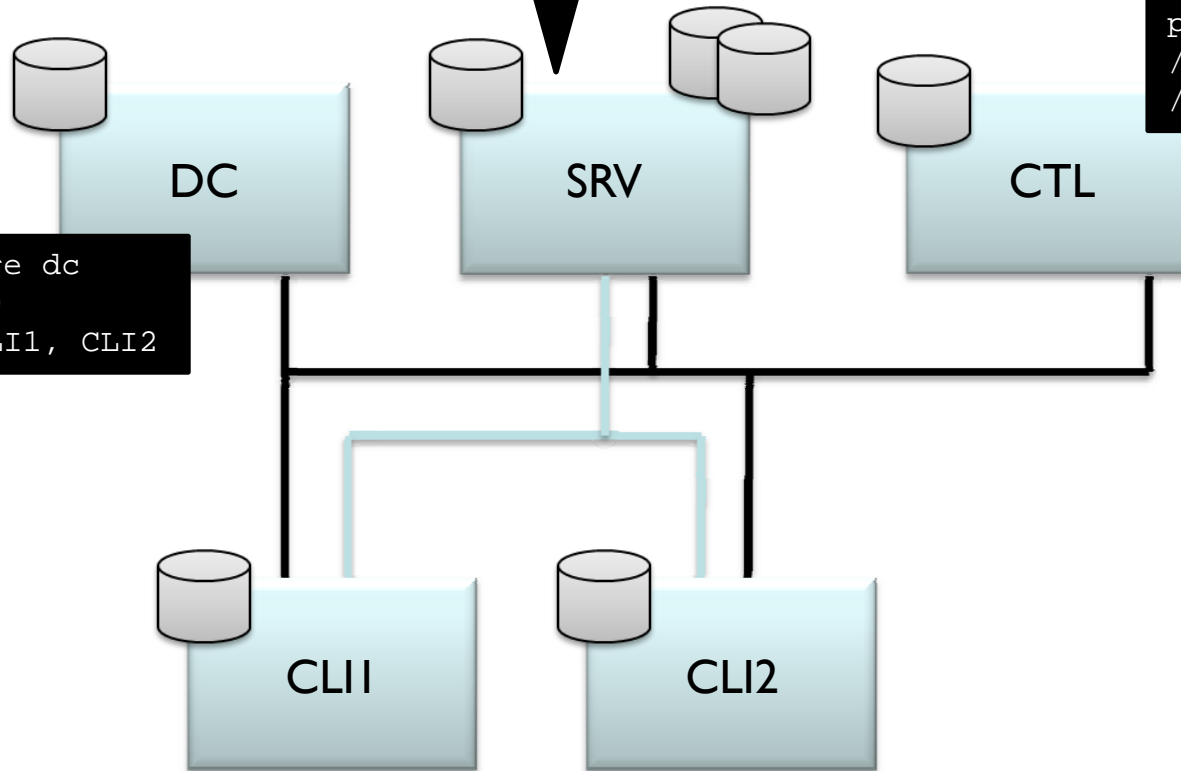


“FSCT” Prepare with AD

```
FSCT prepare server  
/clients CLI1,CLI2 /password PASS  
/users 1000 /domain contoso.msft  
/volumes E:,F: /workload HomeFolders
```

```
FSCT  
prepare controller  
/clients CLI1,CLI2  
/volumes E:,F:
```

```
FSCT prepare dc  
/users 1000  
/clients CLI1, CLI2
```

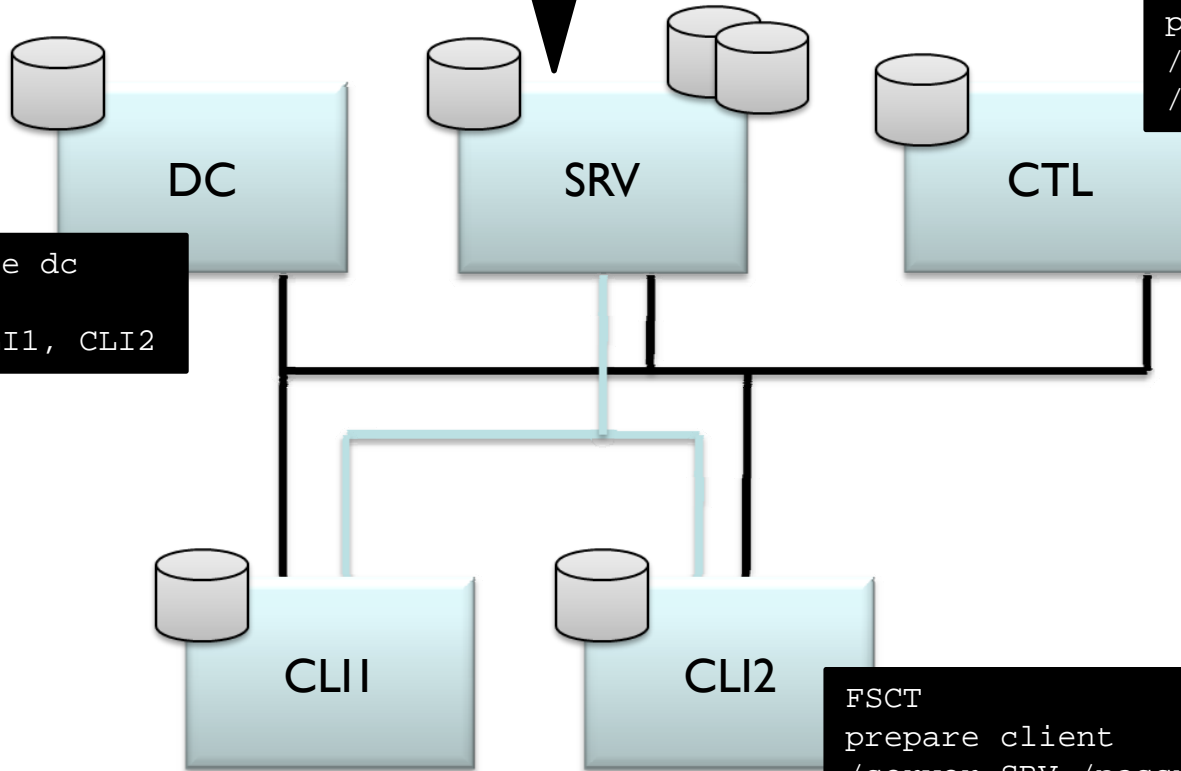


“FSCT” Prepare with AD

```
FSCT prepare server  
/clients CLI1,CLI2 /password PASS  
/users 1000 /domain contoso.msft  
/volumes E:,F: /workload HomeFolders
```

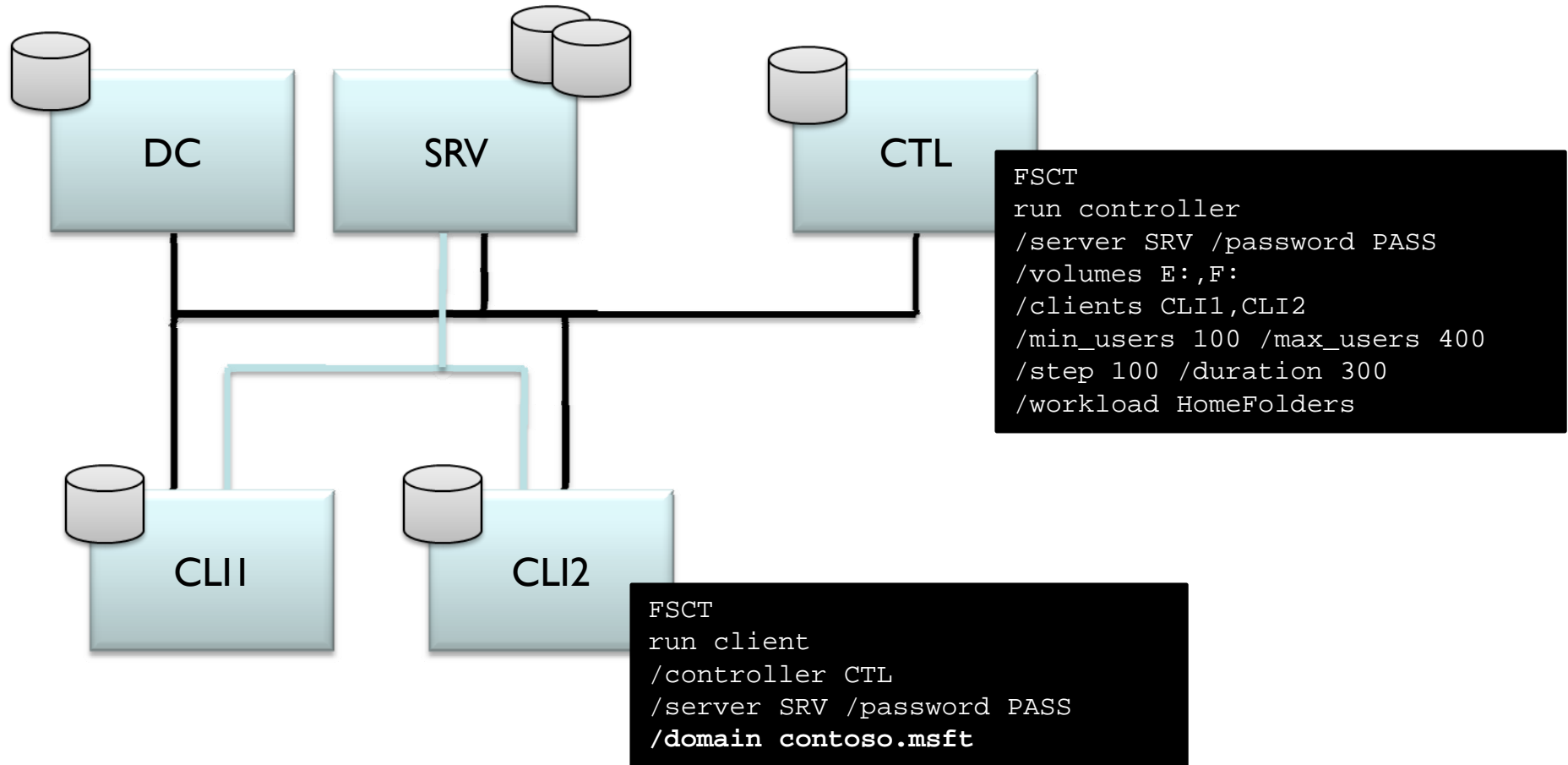
```
FSCT  
prepare controller  
/clients CLI1,CLI2  
/volumes E:,F:
```

```
FSCT prepare dc  
/users 1000  
/clients CLI1, CLI2
```

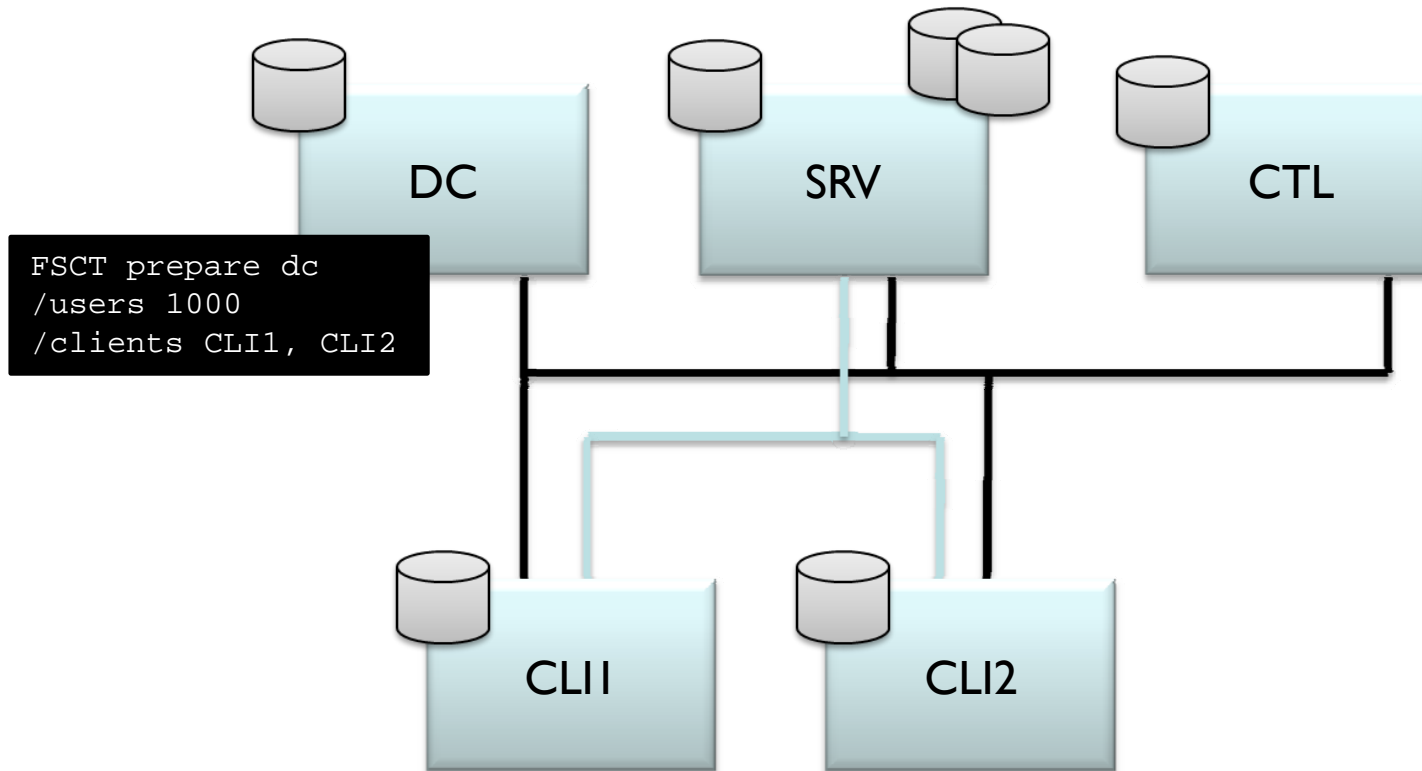


```
FSCT  
prepare client  
/server SRV /password PASS  
/users 1000 /domain contoso.msft  
/server_ip 10.1.1.1
```

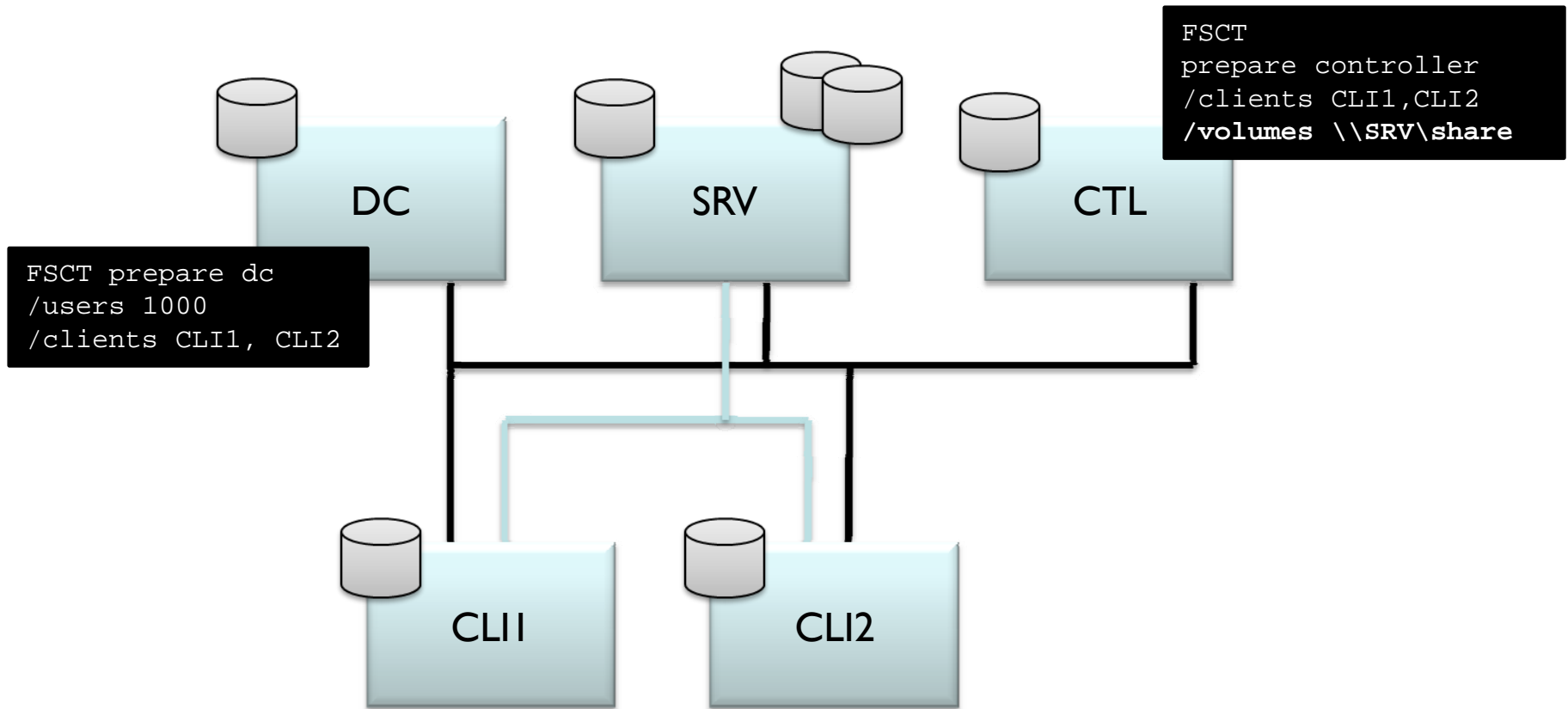
“FSCT” Run with AD



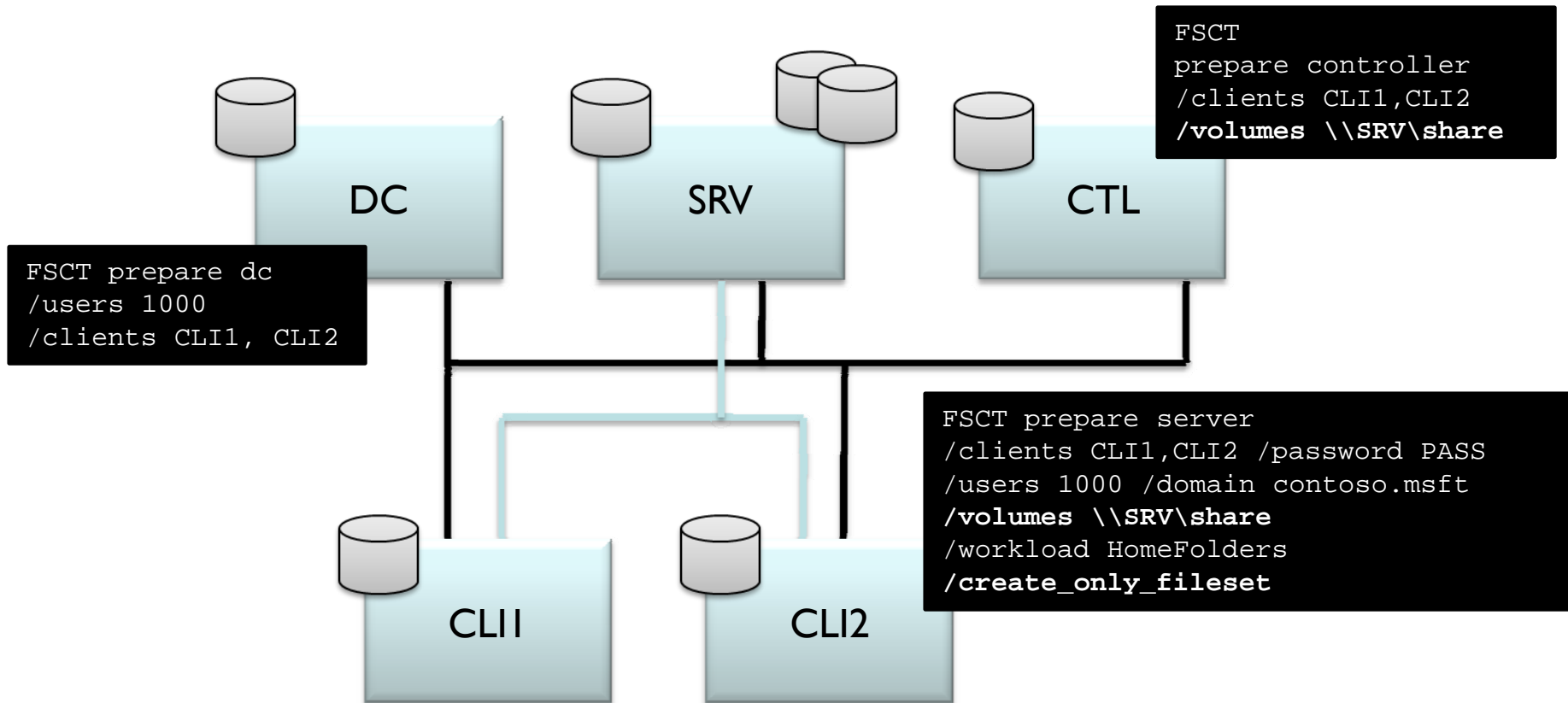
“FSCT” with non-Windows Server



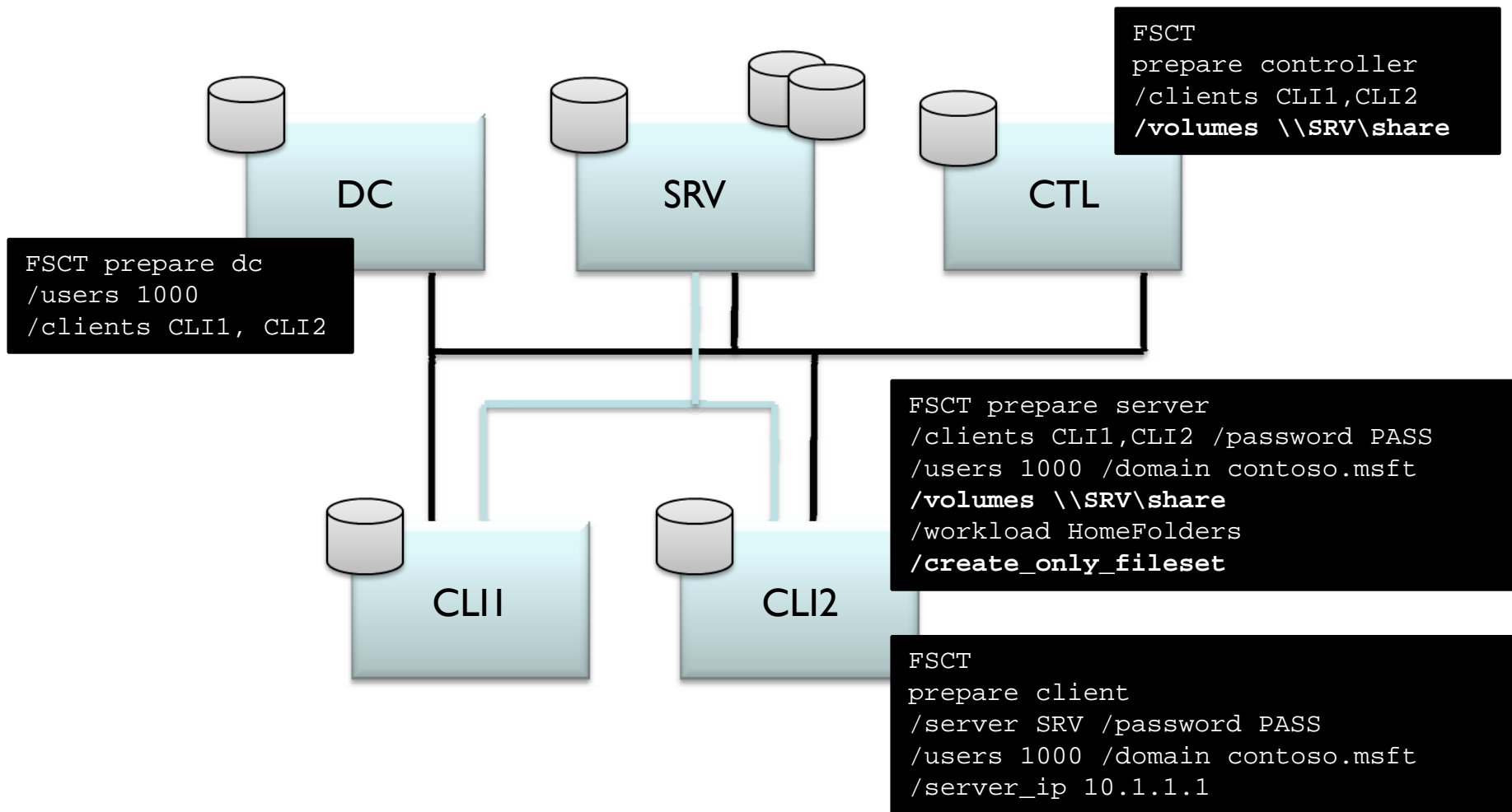
“FSCT” with non-Windows Server



“FSCT” with non-Windows Server



“FSCT” with non-Windows Server



“FSCT” White Paper

- White Paper Content
 - Overview of CIFS/SMB/SMB2
 - Overview of “FSCT”
 - Step-by-step instructions on how to prepare, run and clean up
 - Step-by-step instructions to configure a non-Windows server
 - Command-line reference
 - Annotated results file
 - Description of the HomeFolders workload

- White Paper Releases
 - Draft included with “FSCT” v 0.2 Beta and “FSCT” v 0.5 Beta
 - Final version with “FSCT” v 1.0 public download

“FSCT” Planned Releases

- ❑ “FSCT” v 0.2 Beta
 - ❑ Limited Release via <http://connect.microsoft.com>
 - ❑ EULA restricting publication of results
 - ❑ Available now

- ❑ “FSCT” v 0.5 Beta
 - ❑ Wide Release via <http://connect.microsoft.com>
 - ❑ Target date: Q4 CY 2008

- ❑ “FSCT” v 1.0
 - ❑ Released via <http://download.microsoft.com>
 - ❑ Public download, along with white paper and press release
 - ❑ Target date: CY 2009

- ❑ Dates are estimates subject to change

Send e-mail to request an invitation for the upcoming FSCT 0.5 beta

Help us improve “FSCT”

- Participate in the “FSCT” version 0.5 beta
 - Provide feedback on the tool and the workload