

File Server Capacity Tool for CIFS/SMB/SMB2 (FSCT)

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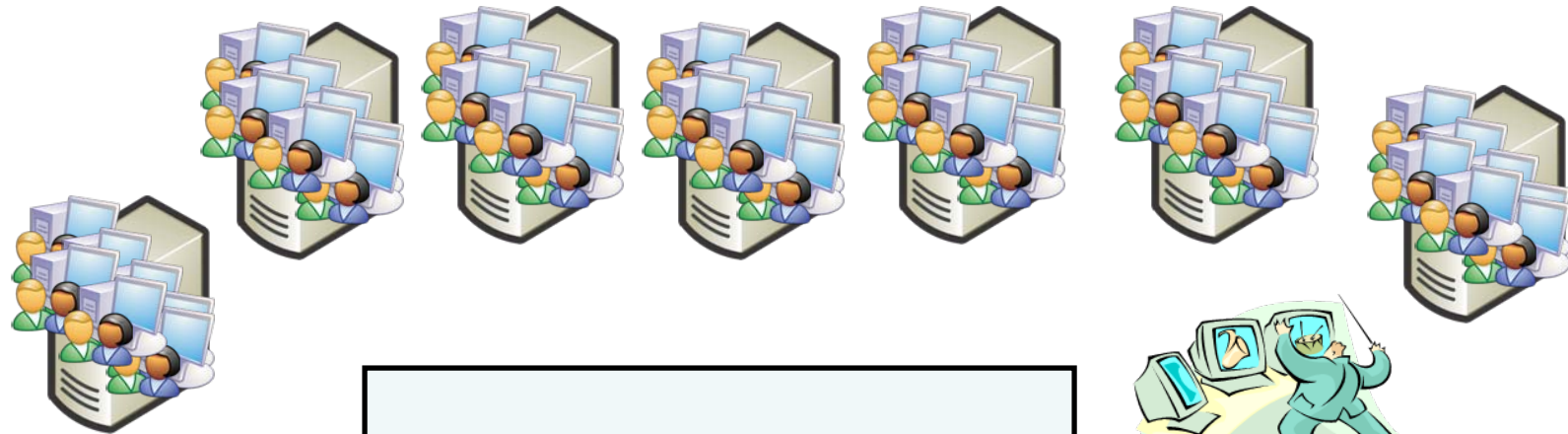
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Agenda

- ❑ What is File Server Capacity Tool?
- ❑ How it works
- ❑ Executing FSCT
- ❑ Releases plans
- ❑ White Paper

Overview

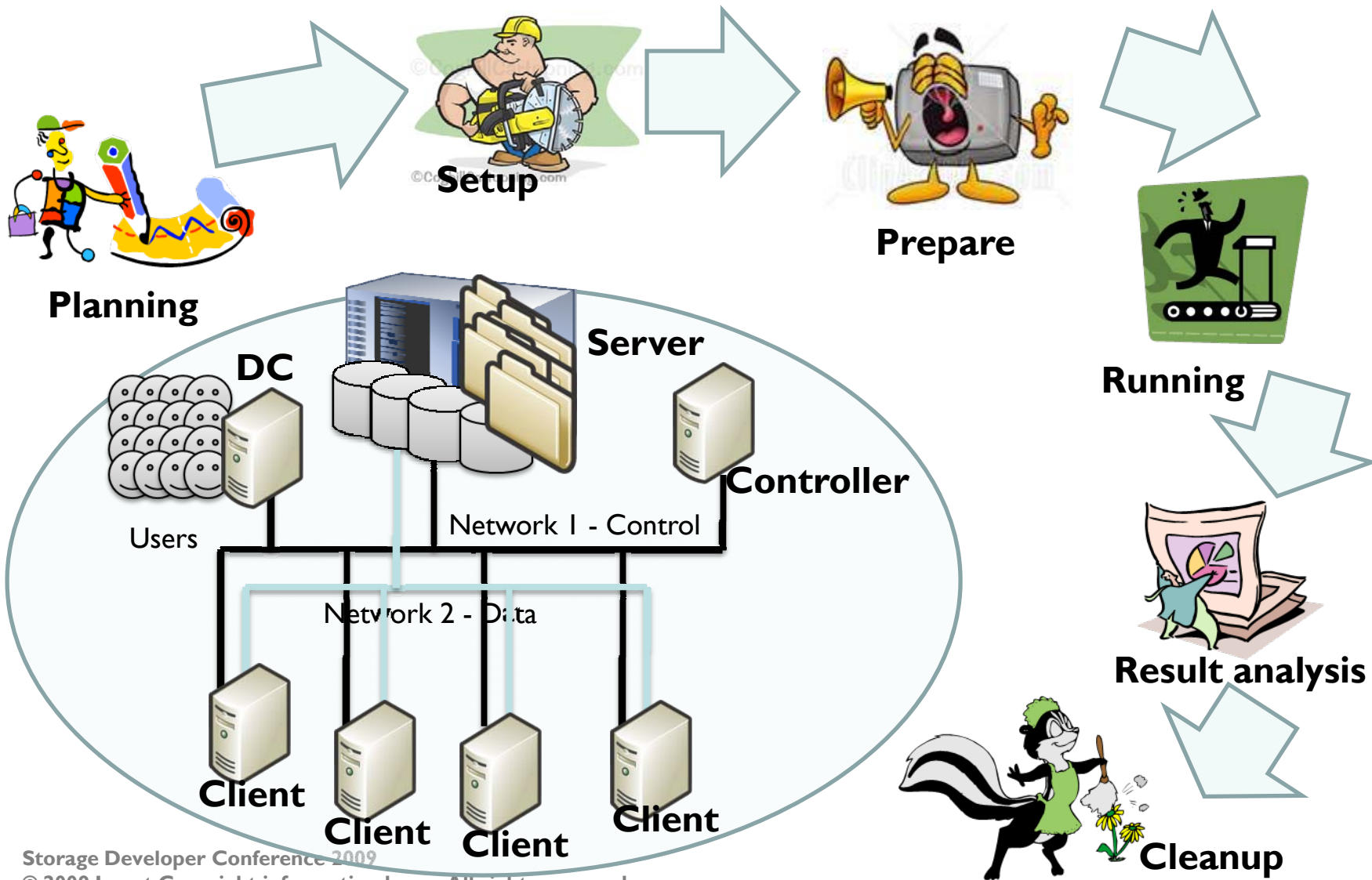


SMB requests for file operations,
simulating home folder workload
e.g. open, save, browse etc

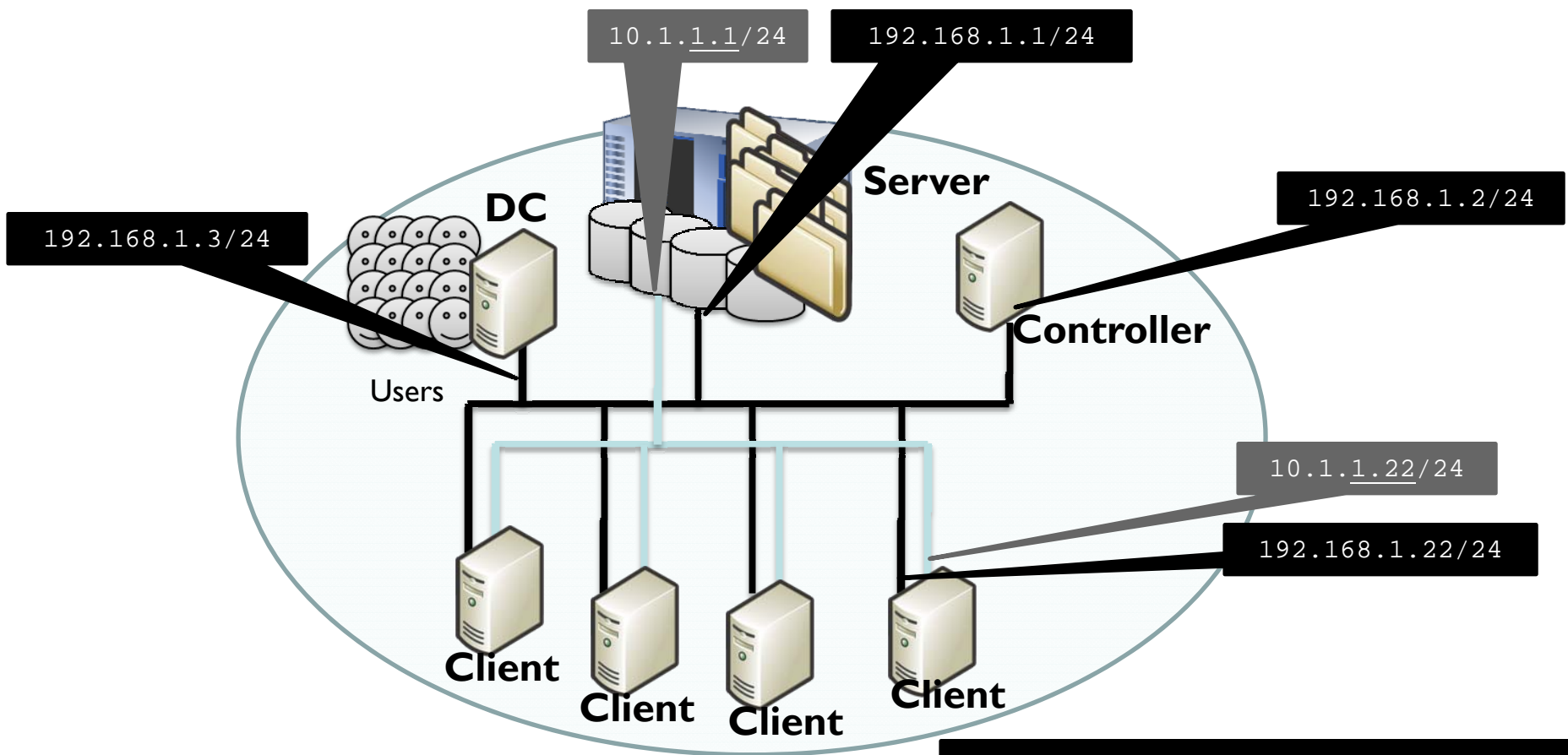


Server under test

How FSCT Works

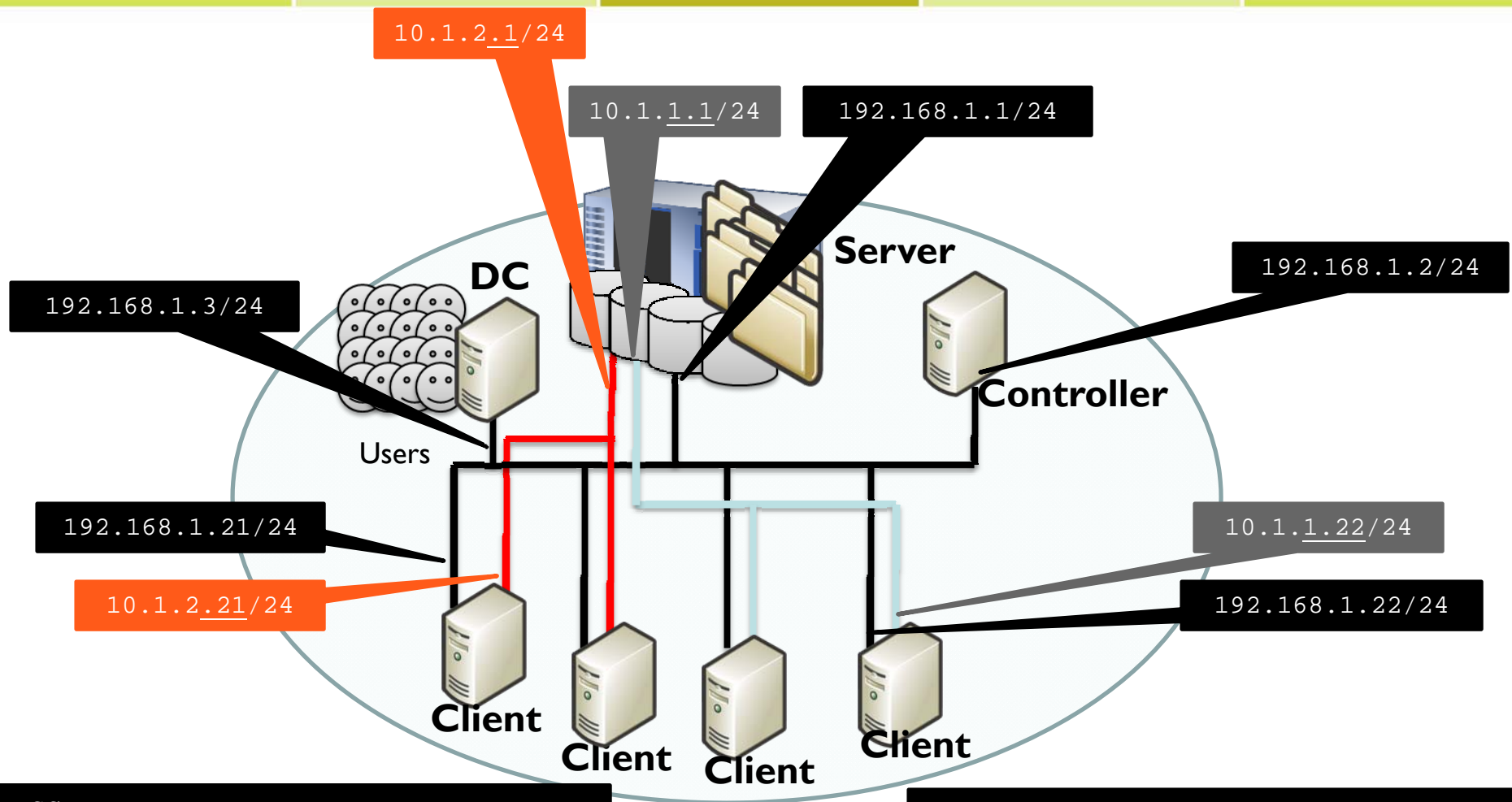


Network Configurations-Basic



```
FSCT
prepare client
/server SRV /password PASS
/users 1000 /domain testdom.com
/server_ip 10.1.1.1
```

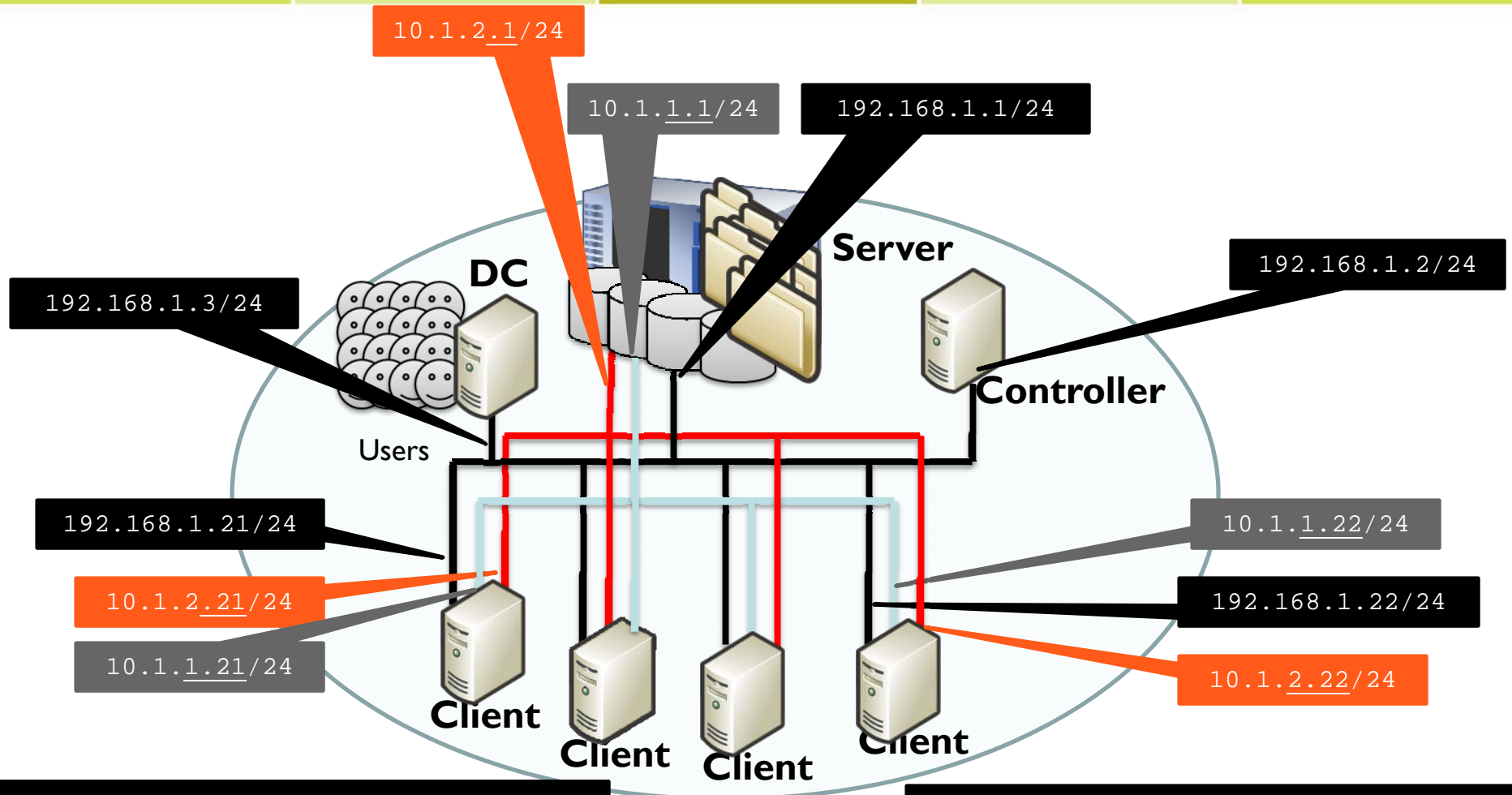
Network Configurations-Segmented



```
FSCT
prepare client
/server SRV /password PASS
/users 1000 /domain contoso.msft
/server_ip 10.1.2.1
```

```
FSCT
prepare client
/server SRV /password PASS
/users 1000 /domain testdom.com
/server_ip 10.1.1.1
```

Network Configurations-Shared



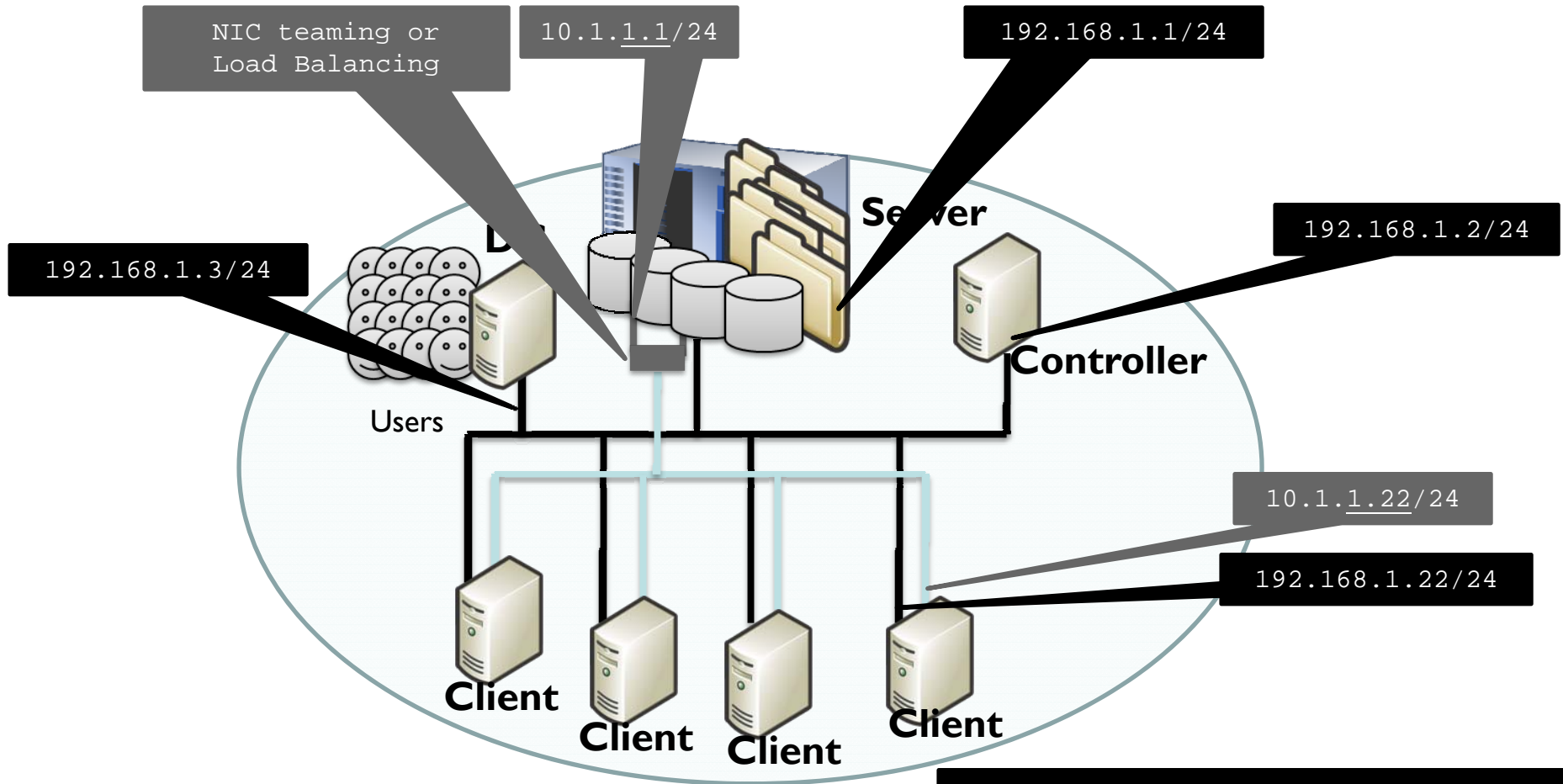
```

FSCT
prepare client
/server SRV /password PASS
/users 1000 /domain contoso.msft
/server_ip ,10.1.1.1,10.1.2.1
    
```

```

FSCT
prepare client
/server SRV /password PASS
/users 1000 /domain testdom.com
/server_ip 10.1.1.1,10.1.2.1
    
```


Network Configurations-Teaming

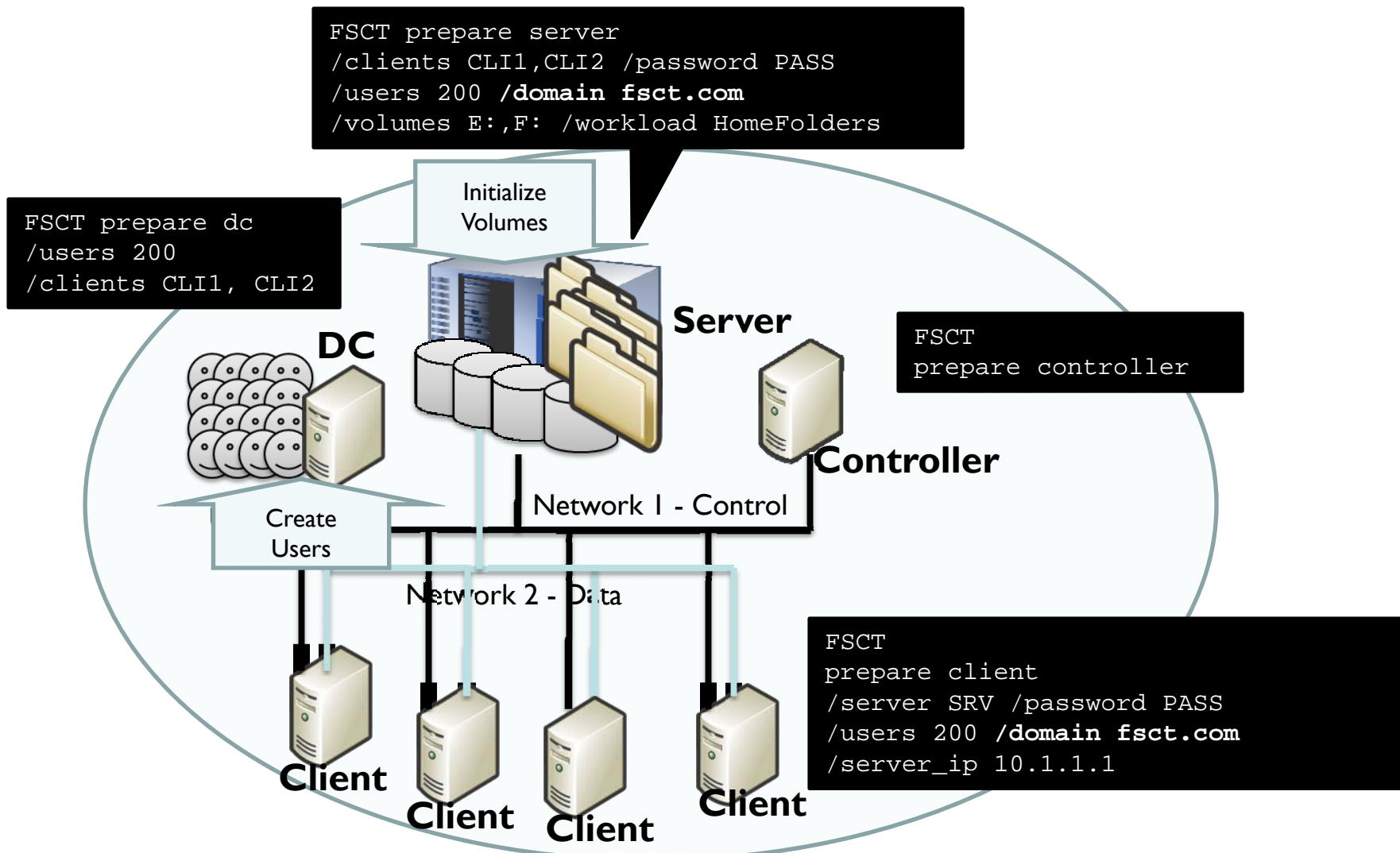


10.1.1.22/24

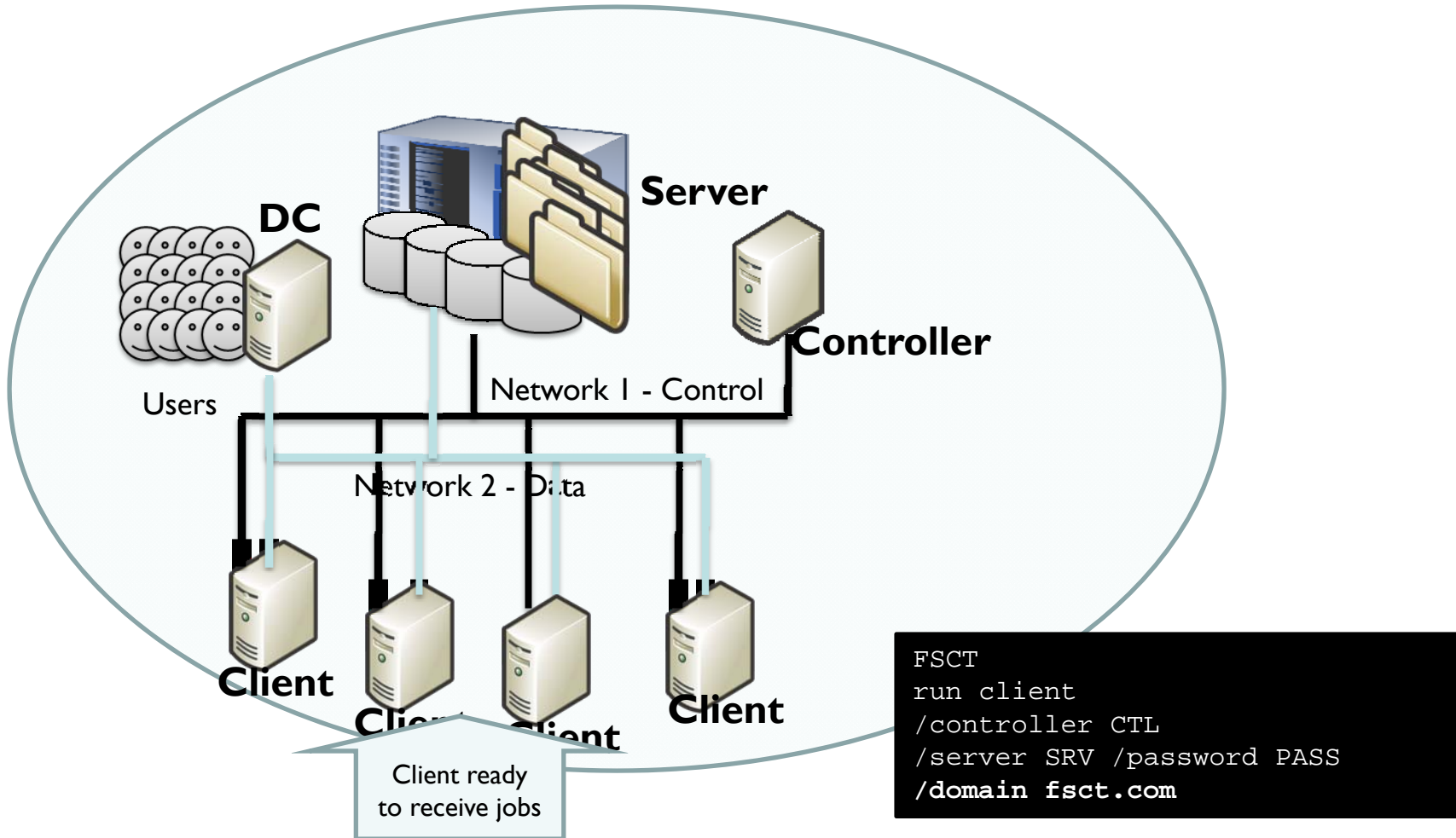
192.168.1.22/24

```
FSCT
prepare client
/server SRV /password PASS
/users 1000 /domain testdom.com
/server_ip 10.1.1.1
```

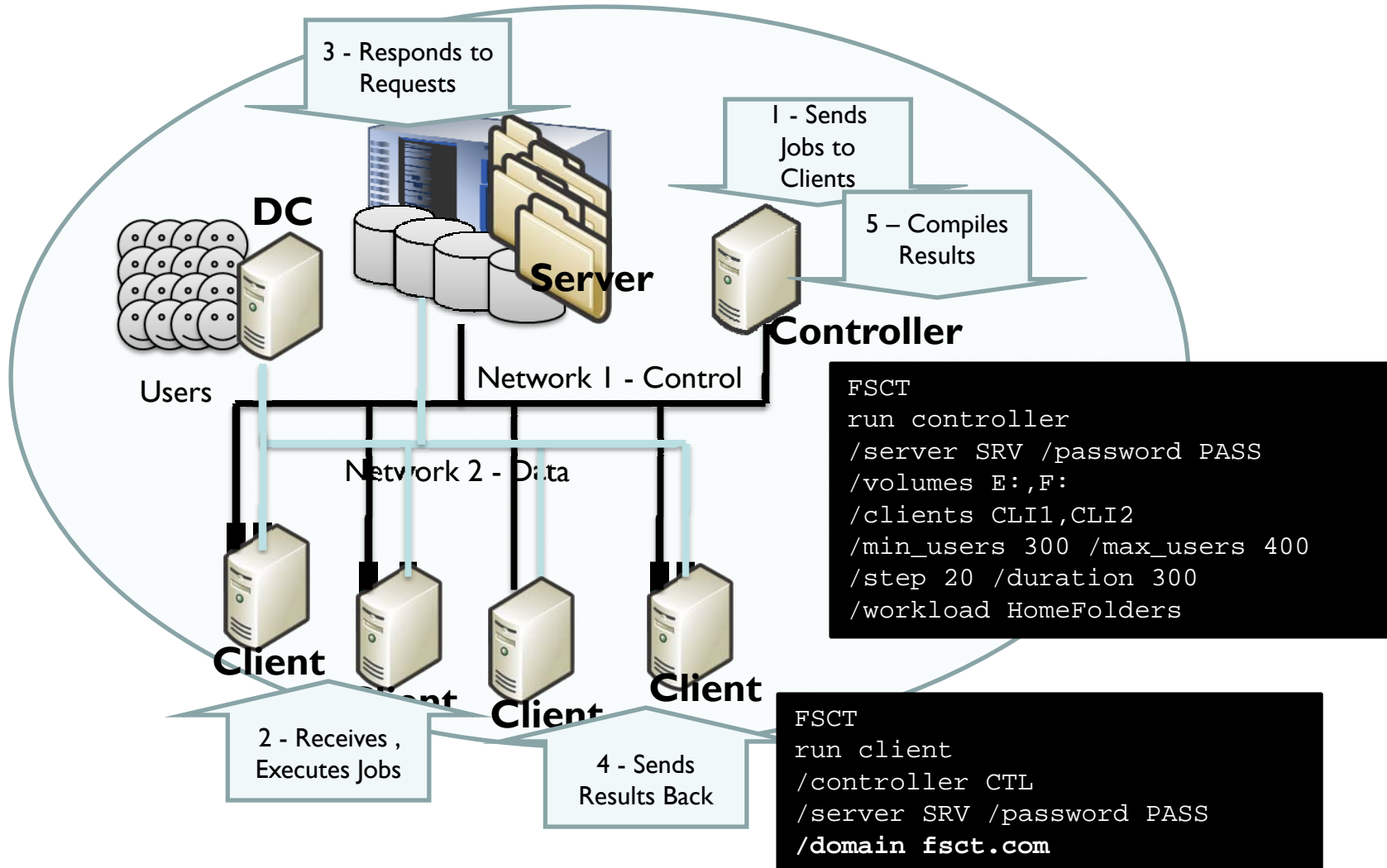
Preparing FSCT



Running FSCT



Running FSCT (cont)



FSCT Results (300 to 400 users, step 20)

Performance Data

```

*** Results
Users  Overload  Throughput  Errors  Duration
300    0%          28          0       900437
320    0%          29          0       900063
340    0%          31          0       900046
360    0%          33          0       901061
380    3%          33          0       903744
400    9%          33          0       904695

*** Test's info
FSCT version:
Workload: Home
Time: 2008/12/
    
```

Throughput (scenarios per second)

```

*** Performance Counters
1 - \Processor(_Total)\% Processor Time
2 - \PhysicalDisk(_Total)\Disk Write Bytes/sec
3 - \PhysicalDisk(_Total)\Disk Read Bytes/sec
4 - \Memory\Available Mbytes
5 - \Processor(_Total)\% Privileged Time
6 - \Processor(_Total)\% User Time
7 - \System\Context Switches/sec
8 - \System\System Calls/sec

*** Server resources
Users  CPU      DiskWrite      DiskRead      Memory      avg( 5)      avg( 6)      avg( 7)      avg( 8)
300    1.7%     3597026.0      4497171.5     3367.1      1.6          0.0         2569.0      635.0
320    1.6%     3758016.8      4513728.0     3266.9      1.6          0.0         3825.3      424.1
340    1.7%     4062200.3      4877578.5     3188.5      1.7          0.0         3057.9      334.1
360    1.9%     4248398.0      5234794.0     3107.0      1.8          0.0         2531.9      339.5
380    2.0%     4367078.0      5367348.5     3014.7      2.0          0.0         1802.4      368.4
400    2.1%     4229903.0      5418630.5     2932.0      2.1          0.0         1326.8      355.2

*** Client Resources (300 users)
Name      CPU      DiskWrite      DiskRead      Memory      avg( 5)      avg( 6)      avg( 7)      avg( 8)
SPTNODE3  1.6%     1036.9         0.0           2507.6      1.5          0.0         1420.7      1116.4
SPTNODE4  1.8%     938.4          0.0           2513.9      1.8          0.1         1400.9      1113.5

*** Client Resources (320 users)
Name      CPU      DiskWrite      DiskRead      Memory      avg( 5)      avg( 6)      avg( 7)      avg( 8)
SPTNODE3  1.2%     2345.1         748.0         2467.5      1.2          0.0         1125.7      1200.3
SPTNODE4  1.2%     1949.0         203.7         2472.9      1.2          0.0         1122.8      1183.5

*** Client Resources (340 users)
Name      CPU      DiskWrite      DiskRead      Memory      avg( 5)      avg( 6)      avg( 7)      avg( 8)
SPTNODE3  1.6%     989.1          0.0           2430.2      1.6          0.0         1300.4      1219.3
SPTNODE4  1.7%     1468.4         532.0         2433.8      1.7          0.1         1310.9      1218.1

*** Client Resources (360 users)
Name      CPU      DiskWrite      DiskRead      Memory      avg( 5)      avg( 6)      avg( 7)      avg( 8)
SPTNODE3  2.1%     938.0          0.0           2383.1      2.0          0.1         1466.7      1282.8
SPTNODE4  2.1%     1104.7         0.0           2390.3      2.0          0.0         1472.5      1299.1

*** Client Resources (380 users)
Name      CPU      DiskWrite      DiskRead      Memory      avg( 5)      avg( 6)      avg( 7)      avg( 8)
SPTNODE3  2.6%     1301.6         86.6          2335.8      2.5          0.1         1945.6      1339.7
SPTNODE4  2.8%     1472.1         76.8          2341.0      2.7          0.1         1931.4      1337.2

*** Client Resources (400 users)
Name      CPU      DiskWrite      DiskRead      Memory      avg( 5)      avg( 6)      avg( 7)      avg( 8)
SPTNODE3  3.0%     1909.3         481.9         2292.0      2.9          0.1         2327.8      1321.7
SPTNODE4  3.1%     1257.9         0.0           2290.9      3.0          0.1         2294.1      1326.7
    
```

Overload at 380 users
Maximum is between 360 and 380

Maximum throughput should be
Around 33 scenarios per second

Cleanup FSCT

```
FSCT
cleanup server
/clients CLI1,CLI2
/users 200
/volumes E:,F:
/domain fsct.com
```

Remove File set

Server

```
FSCT
cleanup controller
/backup C:\backup
```

Controller

DC

Users

Remove Users

Network 1 - Control

Network 2 - Data

Client

Client

Client

Remove Users

Remove entries from hosts file

Cleanup required if

- All tests are done
- Changes in configuration (server, controller, clients, volumes or users)
- Test failed or aborted in the middle of a test run (leads to inconsistent file sets)

```
FSCT
cleanup dc
/clients CLI1,CLI2
/users 200
/domain fsct.com
```

```
FSCT
cleanup client
/users 200
/domain fsct.com
```


Disclosure “best practice”

- ❑ FSCT provides a summary of the results, but 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. 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
 - ❑ OS: Version, edition, architecture, service pack
 - ❑ FSCT commands
 - ❑ 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)

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

- 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 0.7 RC , currently available on the connect.microsoft.com
 - Final version with “FSCT” v 1.0 public download
 - Internally available at <http://sharepoint/sites/fsct/default.aspx>

FSCT Release plans

- “FSCT” 1.0 RTM
 - Release via <http://download.microsoft.com>
 - Target date: Sept 2009

- Working with the marketing team for a going to market plan
- Support alias FSCT@microsoft.com
- Forum: <http://social.technet.microsoft.com/Forums/en-US/fsct>

Demo

Using FSCT

Help us to improve “FSCT”

- Participate in the “FSCT” RC tests
 - Provide feedback on the tool and the workload
 - Invite customers and partners to download from the <http://connect.microsoft.com>
- Participate in the forum

Thank you
