

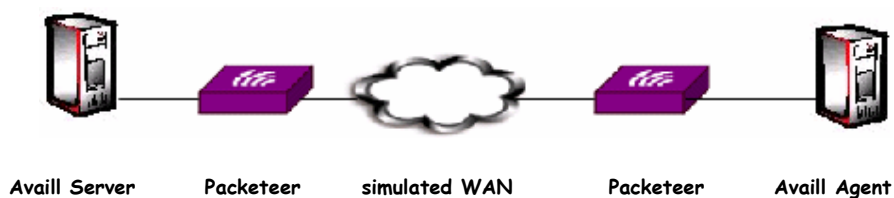


This document describes the necessary steps to perform a basic installation of quick Two-Site-WAFS-Evaluation setup. In addition to the setup, I have introduced Packeteer's capabilities to accelerate and manage bandwidth for AvaiLL WAFS communication.

Use the two-site WAFS wizard as your introduction to WAFS. AvaiLL's two-site wizard will create two demo folders, one in each site, and will connect them via WAFS. All you need is to download the Demo Setup and start the installation.

AvaiLL is a software-only solution. An AvaiLL deployment consists of one **AvaiLL Server** software, and one or more **AvaiLL Agents** that run on the different computers, typically in different locations. The AvaiLL Server is the "traffic cop", managing the data on the agents, and providing the backup vault for disaster recovery, past versions of files, and point-in-time snapshots.

AvaiLL operations center on an **AvaiLL Job**. A Job runs on an AvaiLL Server, and when connected to by AvaiLL Agents, it maintains data in full synchronization and real-time coherency between the AvaiLL Server and all the AvaiLL Agents.



- AvaiLL Server & Agent: www.avaiLL.com
- Packeteer: Test 1 with PacketShaper XPress & Test 2 with Packeteer SkyX Gateway
- Simulated WAN: 512k, 200ms latency

There are a couple of tools, which can be used as a WAN Simulator. For example:

- NISTNET <http://snad.ncsl.nist.gov/itg/nistnet/>
- MOnOWall <http://www.mOnO.ch/wall/>
- DummyNet http://info.iet.unipi.it/~luigi/ip_dummysnet/
- PacketShaper in DQ Mode (my preferred box) www.packeteer.com

AvaiLL's WAFS solution already provides good performance utilization, however, the link itself can be improved with and WAFS will benefit from this much more.



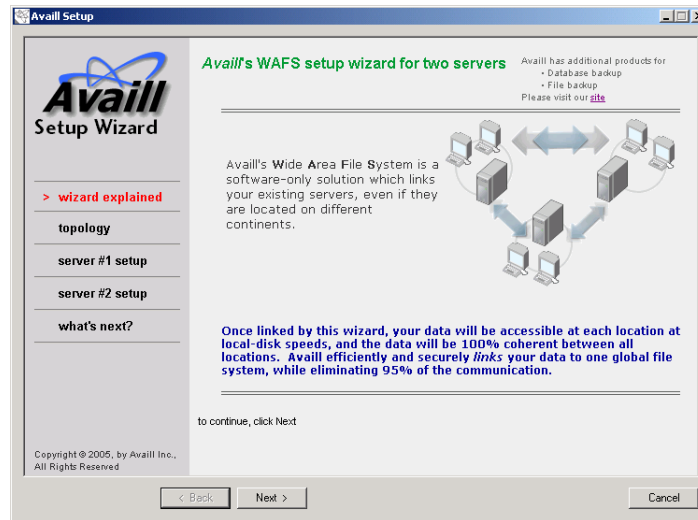
DISCLAIMER

This Technical Tip or TechNote is provided as information only. I cannot make any guarantee, either explicit or implied, as to its accuracy to specific system installations / configurations. Readers should consult each Vendor for further information or support.

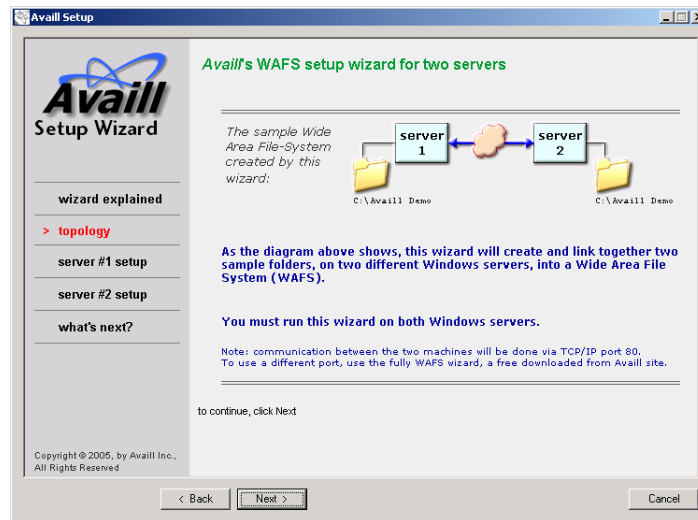
Although I believe the information provided in this document to be accurate at the time of writing, I reserve the right to modify, update, retract or otherwise change the information contained within for any reason and without notice. This technote has been created after studying the material and / or practical evolution by myself. All liability for use of the information presented here remains with the user.

Setup of Avaiil-Server:

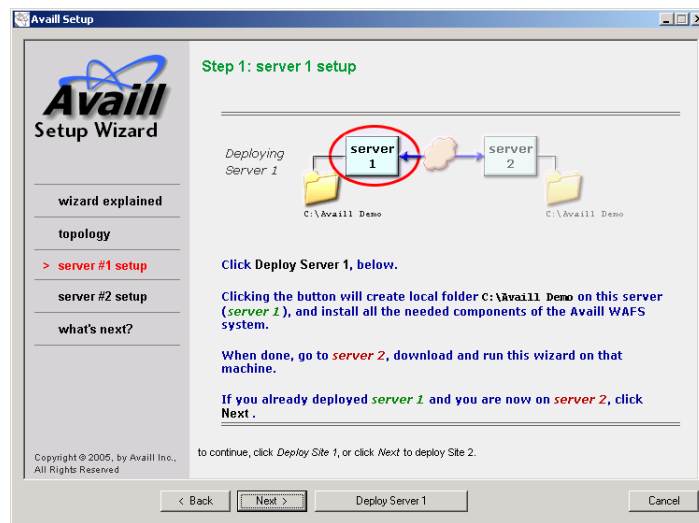
Download the Demo Software from http://www.avaiil.com/2005/try/Tryindex_md.htm and run the executable. A setup Wizard will guide you through the setup.



In this scenario I've installed the Two-Site-Demo, which involves one Avaiil Server (Data-Center) & one Avaiil Agent (Remote Office). The setup wizard is pretty straight forward.



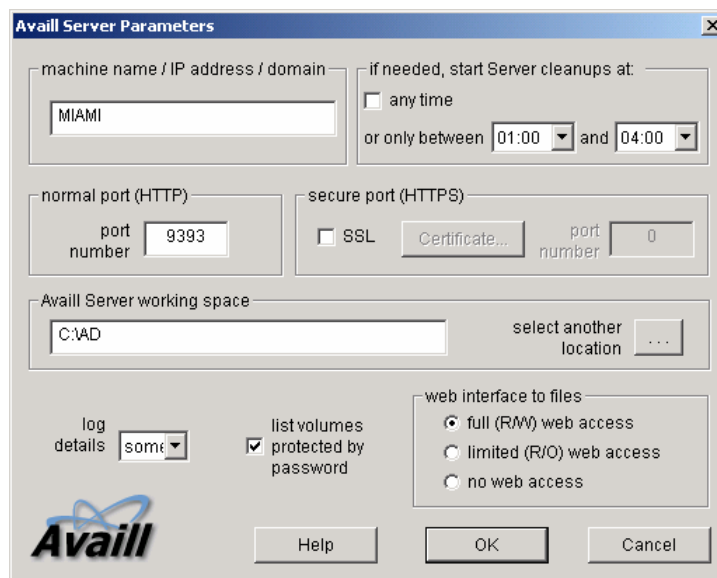
Click on **NEXT** and perform DEPLOY SERVER 1. This will create a local folder c:\Avaiil Demo on this server 1 and install all the needed components of the Avaiil WAFS system.



Another Dialog Box will open. Click on **OK**



Now you have to set some parameters for the server, like machine name or IP Address and of course the HTTP port to be used for WAFS synchronization.



When done with settings, click on **OK**

Next it will provide you with the Activation Information. The preset Activation key allows you to run the test for 14 days. Type your First Name, Last Name and Company Information

Activation Information

Activation:

First Name: [Rainer] Last Name: [Bemsel]

Company: [TestLab]

Activation Key: [PSVM6-GMCWQ-6QA7A-4RE2F]

If you need assistance or have any question, please [contact us](#). Also by phone (978) 474-9116 or email info@availl.com

< Back Next > Cancel Help

Finally, you should get the Availl Server Console.

[AD] Availl Server Console 3.1-09

Availl

Manage Availl Jobs Snapshots & Recovery Parameters... License info Help Exit

(now running as NT Service)
 auto run as an NT Service

RUN

disk C usage, and the auto-cleanup threshold

used 5,207 MB threshold 15,103 MB (housekeeping is idle)

clients:

	now	total	HTTPS	packets	errors
Agents	0	0	0	0	0
web	0	0	0	0	0

file stats:

	now	total
opened	0	0
# files	to srv: 0 from srv: 0	
# bytes	0	0

data communication:

	in	out
uncmpr.	0	0
raw	0	0

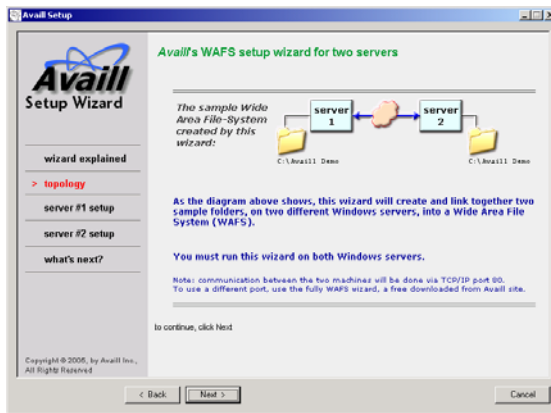
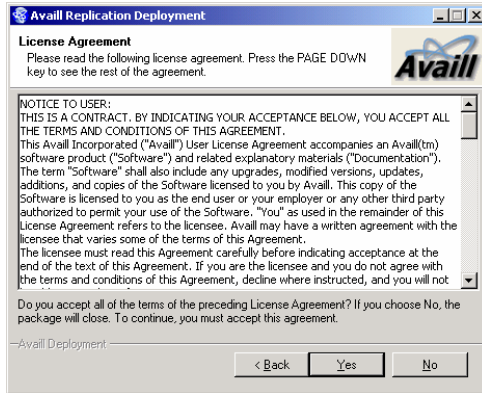
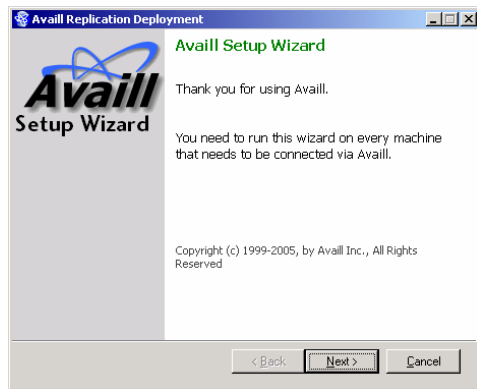
open-file backup:

files:	0	bytes:	0
--------	---	--------	---

So far, so good.

Setup of Avai11-Agent

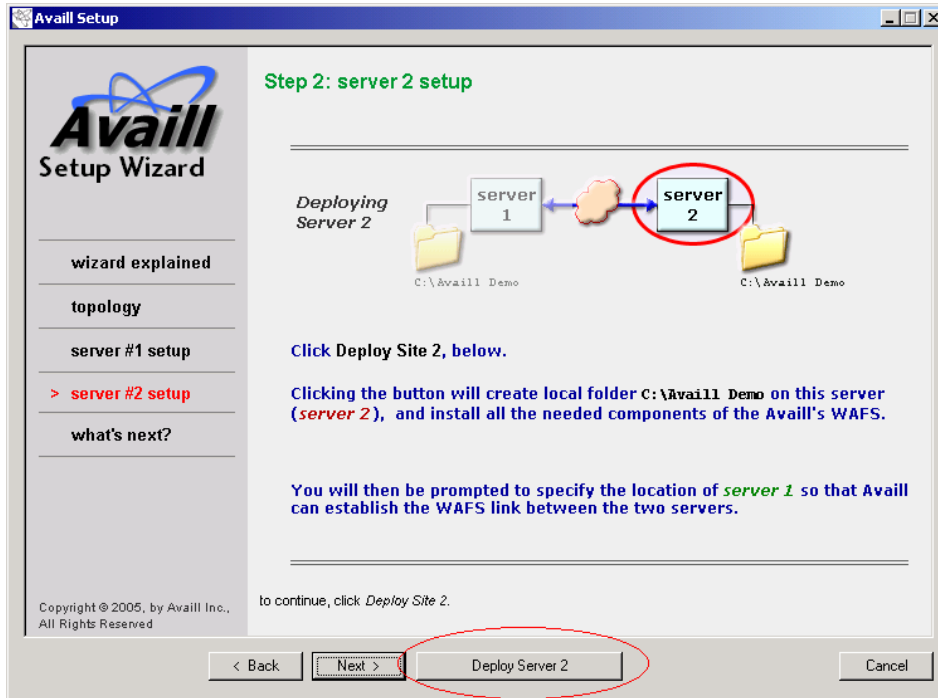
The first few steps are similar to the Server installation



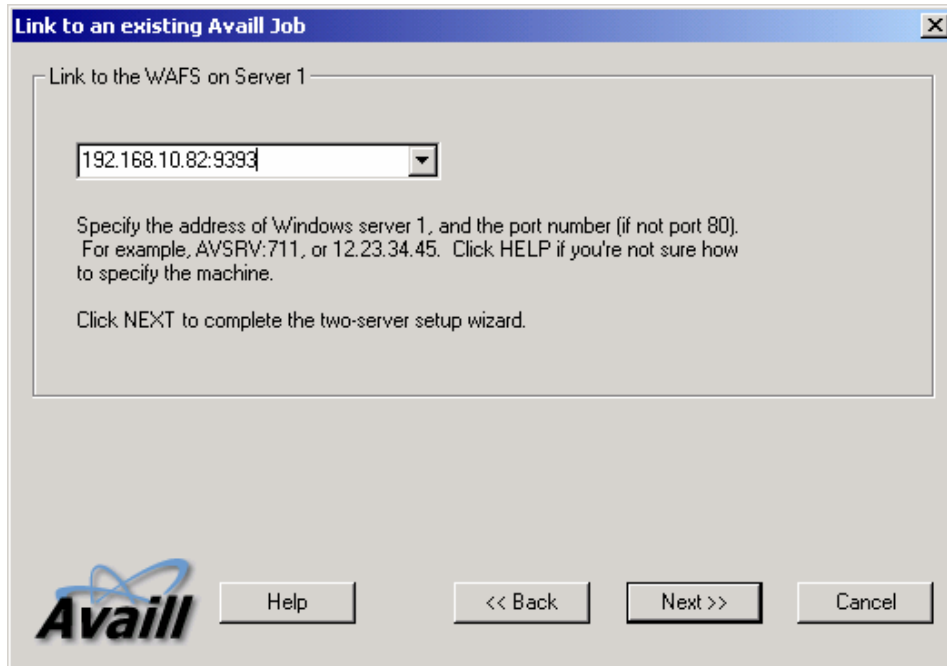
Instead of deploying Server 1, click on NEXT



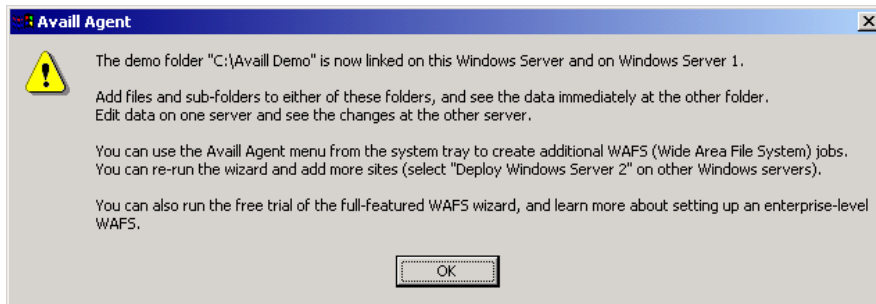
Click on **DEPLOY SERVER 2**



Specify Link to the WAFS on Server 1, you deployed earlier. Click on **Next**



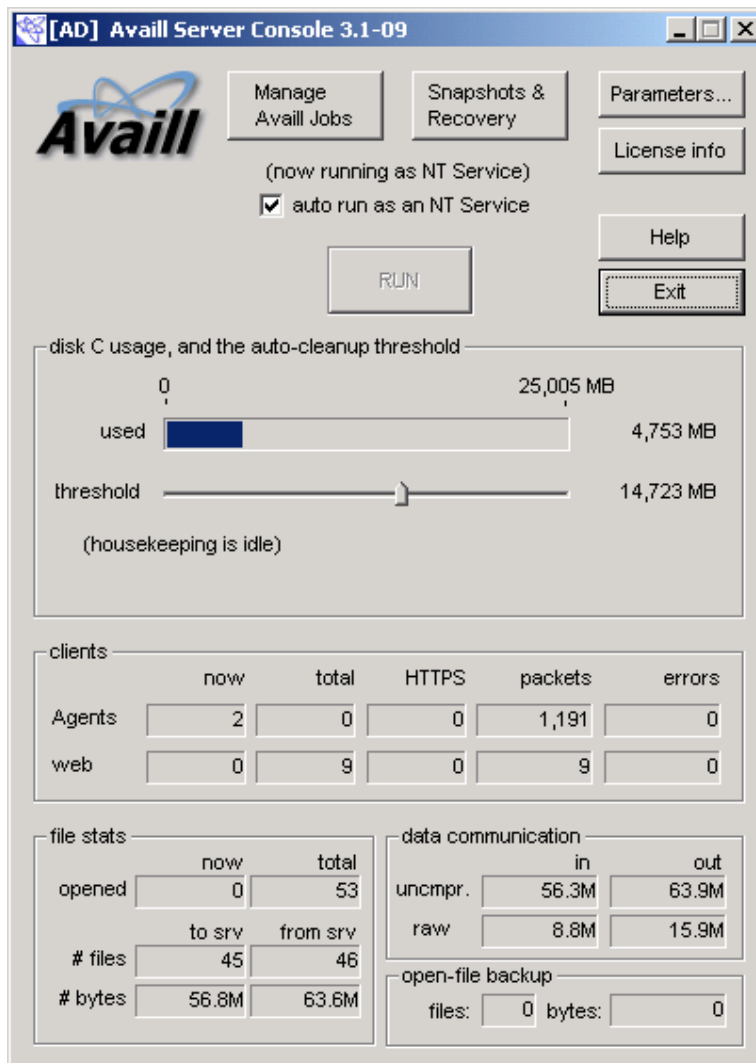
Finally, the two folders on Server-1 & Server-2 should be linked.



On the status bar, you should see the online status



Following Status Window on Server-1 get you some feedback about transferred files.



Setup of PacketShaper in DQ Mode:

Ping results before DQ Mode:

```
C:\>ping -l 1460 192.168.10.88

Reply from 192.168.10.88: bytes=1460 time=2ms TTL=255
Reply from 192.168.10.88: bytes=1460 time=2ms TTL=255
Reply from 192.168.10.88: bytes=1460 time=2ms TTL=255
Reply from 192.168.10.88: bytes=1460 time=2ms TTL=255

Ping statistics for 192.168.10.88:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 2ms, Average = 2ms
```

Following Commands are already my most used "set of commands" to simulate WAN Latency.

```
PacketShaper # sys set testShapingModes 1    -> turns on Delay Queue
PacketShaper # set shaping dq                -> set shaping mode to Delay Queue
PacketShaper # dq mode global                -> set Delay Queue to whole link
PacketShaper # dq speed 512000              -> simulates a 512k Link
PacketShaper # dq latency 100 0             -> adds 100ms latency (200ms RTT)
```

Ping result after DQ Mode:

```
C:\>ping -l 1460 192.168.10.88

Reply from 192.168.10.88: bytes=1460 time=250ms TTL=255
Reply from 192.168.10.88: bytes=1460 time=250ms TTL=255
Reply from 192.168.10.88: bytes=1460 time=250ms TTL=255
Reply from 192.168.10.88: bytes=1460 time=250ms TTL=255

Ping statistics for 192.168.10.88:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 250ms, Maximum = 250ms, Average = 250ms
```

If you look closely to the Round trip Time, you see an increase to 250ms, because of the 512k link. Without a length of 1460 byte, you get closer to 200ms. When measuring real round trip time, you better use a typical packet length, you would see with real traffic, like FTP or WAFS, however ping is based on *UDP*, FTP or WAFS on *TCP*.

```
C:\Documents and Settings\Administrator>ping 192.168.10.88

Reply from 192.168.10.88: bytes=32 time=202ms TTL=255
Reply from 192.168.10.88: bytes=32 time=202ms TTL=255
Reply from 192.168.10.88: bytes=32 time=202ms TTL=255
Reply from 192.168.10.88: bytes=32 time=202ms TTL=255

Ping statistics for 192.168.10.88:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 202ms, Maximum = 202ms, Average = 202ms
```



Configure another PacketShaper for WAFS Classification

Create a manual class for WAFS on the Inbound.

add class cancel

Parent Name: /Inbound
 Name: AVAILL-WAFS
 Device: any
 Protocol Family: IP
 Service: HTTP (Web)

Server Location: If the chosen service uses a server, is it found inside or outside?
 Choose "Any" if service is applicable to both sides or none.

Inside Any Outside

Bind this class with the port 9393

<p>Inside</p> <hr/> <p>Port(s) <input type="text" value="9393"/></p> <p><input type="checkbox"/> Proxy this Service to a non-standard port</p> <p>Host/Subnet</p> <p><input type="radio"/> Name <input type="text"/></p> <p><input type="radio"/> IP Address <input type="text"/></p> <p><input type="radio"/> Host List <input type="text" value="(none)"/> edit list ...</p> <p><input type="radio"/> Subnet <input type="text"/></p> <p>Mask <input type="text"/></p> <p>MAC Address <input type="text"/></p>	<p>Outside</p> <hr/> <p>Port(s) <input type="text" value="any"/></p> <p>Host/Subnet</p> <p><input type="radio"/> Name <input type="text"/></p> <p><input type="radio"/> IP Address <input type="text"/></p> <p><input type="radio"/> Host List <input type="text" value="(none)"/> edit list ...</p> <p><input type="radio"/> Subnet <input type="text"/></p> <p>Mask <input type="text"/></p> <p>MAC Address <input type="text"/></p>
--	--

For IP Address, use dotted decimal notation, the keyword "any", "multicast", or "local" (on Inside only).

Copy this class also to outbound

Traffic Class Name	Report	Class Hits	Policy Hits	Current (bps)	1 Min (bps)	Peak (bps)	Guar. Rate	Pkt Exch (ms)	Partition Min-Max	Policy Type (Pri.) Guar.-Limit	Top User Analysis
Inbound				7505	7170	1.9M	0	NA	uncommitted - none		
Localhost		4352	4352	0	1710	804k	0	38		Priority (6)	
AVAILL-WAFS		254	NA	6998	6785	8015	0	NA			
Default		15	2053	616	209	1496	0	1		Priority (3)	
Outbound				326k	286k	634k	0	NA	uncommitted - none		
Localhost		4456	4456	0	2109	394k	0	9		Priority (6)	
AVAILL-WAFS		255	NA	305k	298k	564k	0	285			
Default		14	2161	381	291	1064	0	412		Priority (3)	

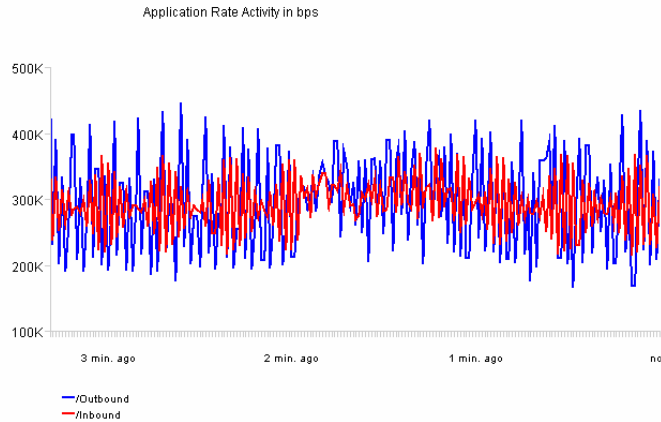
Traffic Class Name	Graphs	Threshold (ms)	Transactions Count	Good %	TCP Conn.	Avg. Trans. Delay (ms) Total	Network	Server	Round Trip (ms)	Worst Clients & Servers
/Inbound/AVAILL-WAFS		0	270	100%	0	676	671	5	195	NA
/Inbound/Default		0	27	100%	0	367	352	16	186	NA
/Outbound/Localhost		0	4226	100%	3988	29	24	5	1	NA



Link-Utilization Graphs

Synchronization with FTP Upload

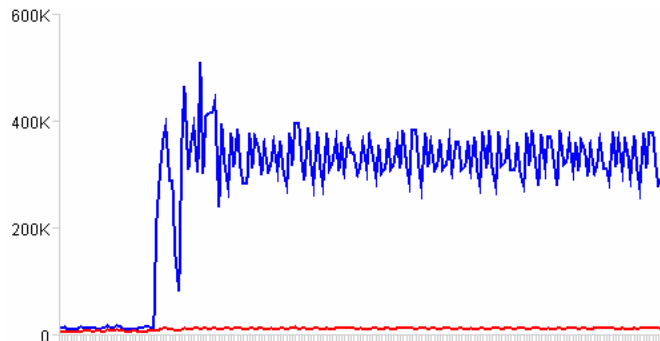
FTP did not utilize as expected, however in average 300k utilization could be seen.



Synchronization with WAFS, based on Avaiil-Software

As you can see, WAFS was using a higher utilization as FTP. Not to forget the advantages of this solution.

Shaping will help to keep the utilization in an optimal rate and keeping critical business application productive and guarantee bandwidth per flow.



On PacketShaper, compression has been activated and saved a couple of Bytes, as well

Compression Summary For: 192.168.10.77

Generated: Nov 24 2005 - 00:36:40

Last **1 hr** 8 hr day week print

Show hour before (now) (now) (now) update auto off

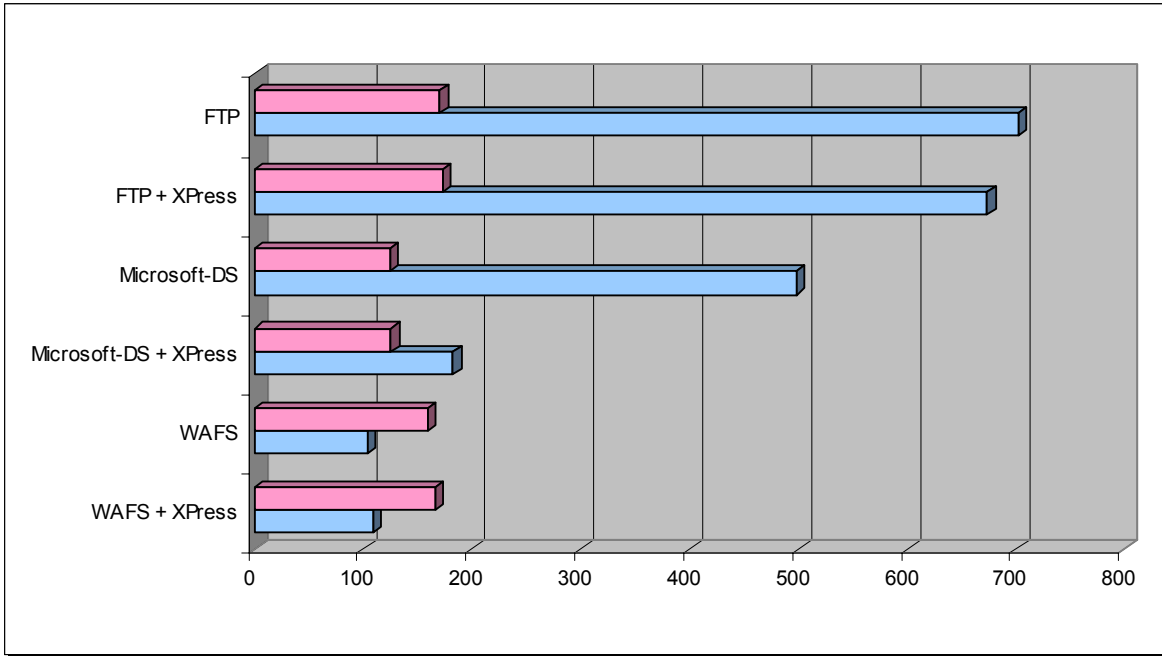
include non-compressible traffic in graphs and data include link size in graphs

	Inbound	Outbound
Precompression Bytes	29.4M	29.6M
Postcompression Bytes	5.6M	5.7M
Bytes Saved	23.8M	23.8M
% Bytes Saved	81%	81%
Bandwidth Multiple	528%	516%



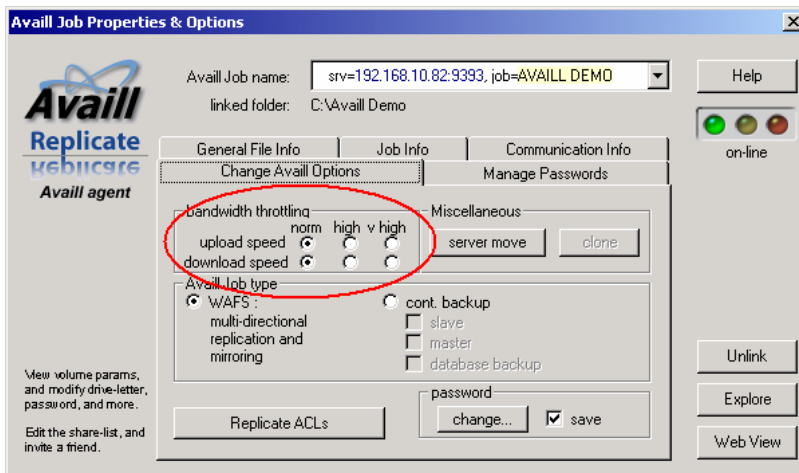
Results

Test files are a 6 MB Binary File & 25 MB Text File.



Time to transfer the files are displayed in seconds

Once the initial replication of all necessary files had been done, WAFS will only sync the changes. All other methods may overwrite the files. For above measurements, I have used normal bandwidth throttling at the job replications



Other Parameters:

6MB Binary File: "skyx-v6.1.bin"
25M Text File: all text, no picture
Bandwidth: 512k
RTT: 200ms

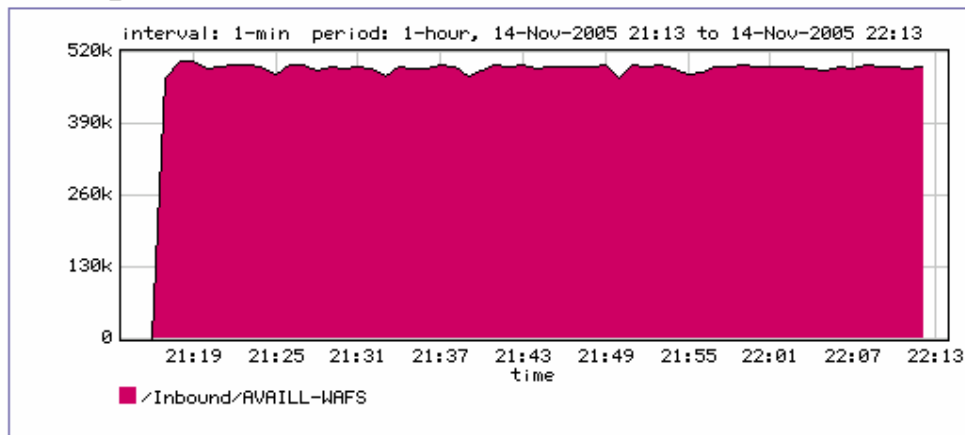
Conclusion:

With binary files, the best results could be achieved with Microsoft-DS, however Text Files or compressible files will get best time-to-transfer results on WAFS. This will be much better, if only the changes within the files will be transferred.

Concerns:

Based on this 512k Link, first time synchronization used the link to its limits. However, AvaiLL-Server has been configured with "very high bandwidth throttling". With heavy file activities on all branch offices and headquarter, you could experience a similar scenario. The best take would be to partition the class for WAFS. You may allow the partition to burst, if bandwidth is available. A good WAFS Solution will also have fine tuning methods.

Average Rate



In this graph, you could see that Average Rate goes up to link speed's limit.

Finally, a screen shot of current AvaiLL WAFS Job

