Applied Methodologies, Inc.

NYC Bank

LAN
ANALYSIS REPORT

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Introduction

Network Analysis.

This Network Analysis report is to provide management at NYC Bank a current operational and capacity state of the Sigma Imaging network located at Atria 900 Stewart Ave. This information will be used to assist the NYC Bankand APPLIED METHODOLOGIES, INC.Management in making appropriate decisions relating to supporting the existing imaging application at Atria.

This report will provide the following information:

- Utilization of the Rings where imaging components reside
- Operational trends
- Utilization trends
- Traffic analysis
- Protocol analysis
- General Findings
- Recommendations
- Design considerations
- Functional design
- Project Open Items list

Note: It is beyond the scope of this document to discuss the attributes of the infrastructure. The reader should be familiar with the infrastructure and the appropriate network components associated.

The Imaging Network Analysis of Atria

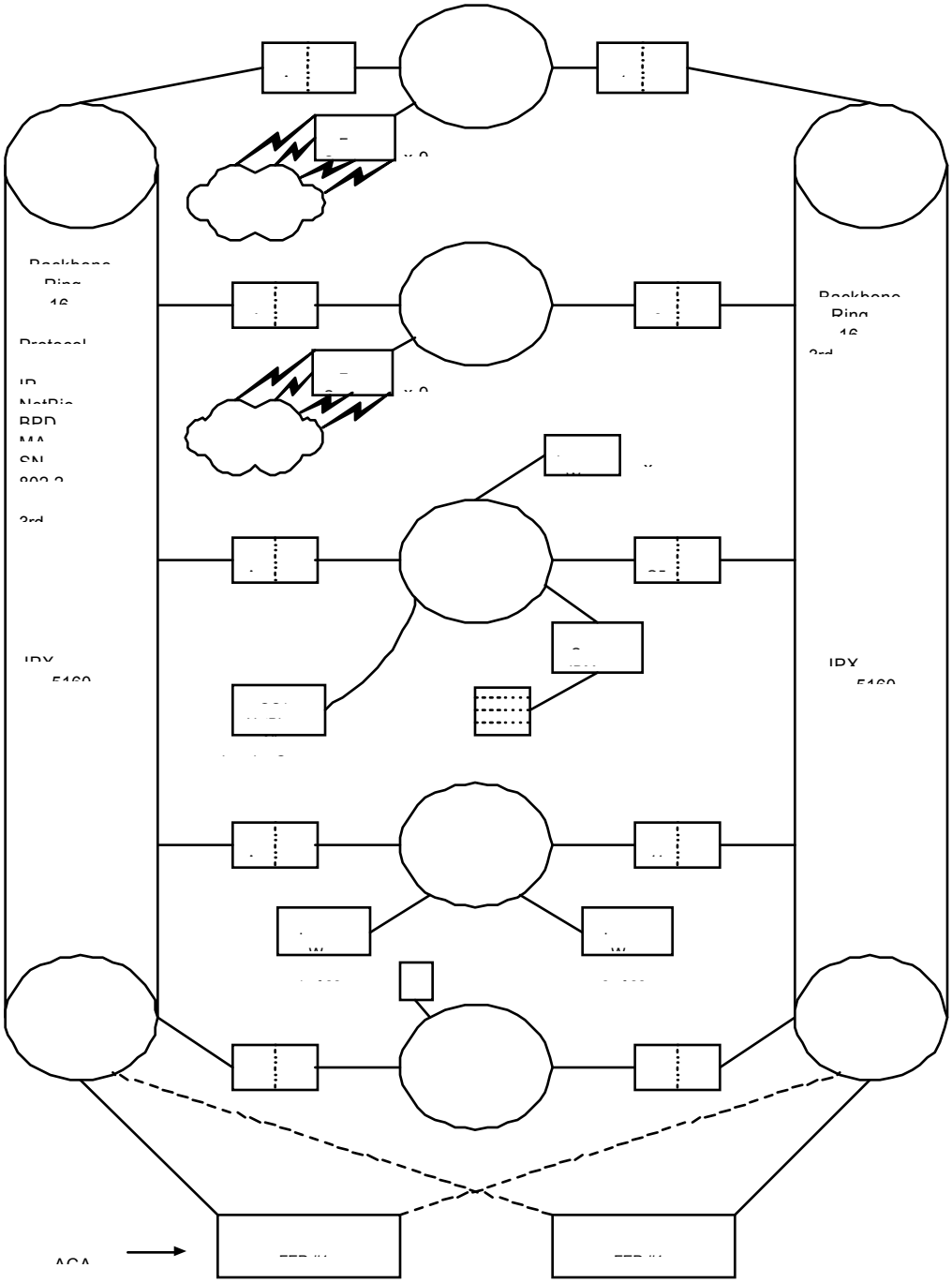
The imaging system at Atria comprises of the following components.

Image and routing server
Fax servers
Optical archive server
Image workstations

It is beyond the scope of this document to discuss the details of these components.

The following illustration shows the relative distribution of these components in Atria's network infrastructure. The current infrastructure supports various types of Files Servers as well as users. This infrastructure is based on multiple Token Ring segments linked together with bridges. The bridges are configured for Source Route Transparent Bridging and Spanning Tree is enabled. There are seventeen rings connected to two backbone rings. The network is represented logically as one flat network. Upper layer (layer three) protocols are transparently bridged across the network. There is only one network address for the entire network so no routing at the network layer is required.

The following illustration only represents the rings associated with the imaging components. Not all rings are represented.



The ring breakdown is as follows:

Ring #1 3rd Floor West: **Fax Servers reside**

Ring #2 3rd Floor West: **Fax Servers reside**

Ring #5 3rd Floor East: **Imaging and Optical Servers**

Ring #14 4th Floor East: **User Imaging workstations**

The following protocols were detected on the network:

IPX/SPX
SNA
NetBios
TCP/IP
SNAP
LLC2
BPDU
802.5

Segment Statistics

The following ring segments were analyzed for basic utilization and functional measurements. Rings: 1, 2, 5, 10, 20 and 14.

LAN Segment: 10 Backbone A
Synoptics 3000 HUB

Snapshot period: 30 min. 3/14/95 10:40 am

Resources on Segment:	Bridges and FEPs
Average wire utilization:	5%
Peak wire utilization:	20%
Top Talker:	400060080500
Protocols detected:	IPX, SPX, RIP, SAP, SNA, MAC, IP, 802.2, SNAP, BPDU
Protocol Utilization:	IPX 48% NetBios 20% SNA 21% Remaining 11%
Logical IPX Network address:	51603
Token Ring Rotation Time:	20800 nanoseconds
Estimated Ring length:	Feet(+/- 200) 9117 Meters: 2779

Packet statistics

SNA	MAX. Frames/second:	10
	Avg. Frames/second:	1

MAC Frames	Max. Frames/second:	22
	Avg. Frames/second:	3
NetWare	Max. Frames/second:	2047
	Avg. Frames/second:	300
Broadcasts:	MAX. Frames/second:	37
global	Avg. Frames/second:	2

Frame Sizes:
(All Frame size integers measured in Bytes)

SNA	Max. Frame size:	44
	Avg. Frame size:	33
NetWare	Max. Frame size:	443
	Avg. Frame size:	168

LAN Segment: 20 Backbone B
Synoptics 3000 HUB

Snapshot period: 30 min. 3/14/95 2:45 PM

Resources on Segment:	Bridges and FEPs
Average wire utilization:	2%
Peak wire utilization:	16%
Top Talker:	4000b5880c00
Protocols detected:	IPX, SPX, RIP, SAP, SNA, MAC, IP, 802.2, SNAP, BPDU
Protocol Utilization:	IPX 53% NetBios 20% SNA 9% Remaining 18%
Logical IPX Network address:	51603
Token Ring Rotation Time:	20100 nanoseconds
Estimated Ring length:	Feet(+/- 200) 8914 Meters: 2717

Packet statistics

SNA	MAX. Frames/second:	12
	Avg. Frames/second:	1
MAC Frames	Max. Frames/second:	27
	Avg. Frames/second:	3

NetWare	Max. Frames/second:	2047
	Avg. Frames/second:	300
Broadcasts:	MAX. Frames/second:	32
global	Avg. Frames/second:	1

Frame Sizes:
(All Frame size integers measured in Bytes)

SNA	Max. Frame size:	44
	Avg. Frame size:	33
NetWare	Max. Frame size:	846
	Avg. Frame size:	170

LAN Segment: 14 User Ring
Synoptics 3000 HUB

Snapshot period: 10 min. 3/15/95 2:45 PM

Resources on Segment:	User workstations and Bridges
Average wire utilization:	1%
Peak wire utilization:	28%
Protocols detected:	SNA, NetBios and TCP/IP
Protocol Utilization:	NetBios 87% SNA 9% Remaining 18%

LAN Segment: 5 Image and Optical Server Ring
Synoptics 3000 HUB

Snapshot period: 10 min. 3/15/95 3:20 PM

Resources on Segment:	Imaging, Optical server and Bridges
Average wire utilization:	1%
Peak wire utilization:	39%
Protocols detected:	NetBios, TCP/IP
Protocol Utilization:	NetBios 92% TCP/IP 1% Remaining 7%

LAN Segment: 1 FAX Servers
Synoptics 3000 HUB

Snapshot period: 10 min. 3/15/95 3:45 PM

Resources on Segment: User IPX workstations, Bridges and Imaging Fax Servers

Average wire utilization: 1%

Peak wire utilization: 21%

Protocols detected: IPX, SPX, RIP, SAP, SNA, NetBios
MAC, IP, 802.2, SNAP, BPDU

Protocol Utilization:

NetBios	70%
IPX	11%
SNA	6%
Remaining	13%

LAN Segment: 2 Fax Servers
Synoptics 3000 HUB

Snapshot period: 10 min. 3/15/95 4:10 PM

Resources on Segment: User IPX workstations, Bridges and Imaging Fax Servers

Average wire utilization: 1%

Peak wire utilization: 39%

Protocols detected: IPX, SPX, RIP, SAP, SNA, NetBios
MAC, IP, 802.2, SNAP, BPDU

Protocol Utilization:

NetBios	35%
IPX	37%
SNA	6%

Remaining 22%

Summary of Findings

The following areas of concern were discovered during the analysis and provides the current operating state of the network. Please refer to the illustration on page seven for an understanding of how all critical and basic components are linked together.

1. **Consistent amount of Frame Copied soft Errors on Backbones A and B.**
2. **Code Violations detected on Backbones A and B.**
3. **Imaging file server CPU utilization peaks to 70%**
4. **Distribution of Imaging resources**
5. **NetBios Name_Recognize frame errors**

1. Consistent amount of Frame Copied soft Errors on Backbones A and B.

Soft errors are reported at a rate of 1 per second on backbone B. The type of soft error is Non Isolating Frame Copied error. This indicates that a bad adapter is present on the ring or a duplicate address. The following sequence of ring stations shows the stations reporting the errors and these stations should be looked at first.

WS **400080410**
NAUN Synopt035264
WS 400080501
NAUN Synopt03d716
WS 400080500
NAUN **400080410**

The same errors appear on Backbone A as well but are not as prevalent.

Reporting stations:

WS 400080501
NAUN Synopt03d410
WS 400080412

2. Code Violations detected on Backbones A and B.

These are hard errors as a result from a failing adapter or physical condition(electrical or cable).

3. Imaging file server CPU utilization peaks to 70%

The Imaging server DSCPRODOBJ, when monitored, reached overall CPU utilization of 70% at various times. This Imaging server runs OS/2 as it's operating system. Since OS/2 is a multitasking operating system it spawns many processes(threads) that must be maintained by one CPU. Also, there is only one 16 bit Token Ring adapter servicing all of the user requests. The utilization reaches high levels when the disk subsystem is in use.

4. Distribution of Imaging resources

The distribution of Imaging resources across several rings makes it difficult to scale and measure growth of the system. The current location of resources also makes it difficult to troubleshoot issues. There is a performance penalty involved when traffic must cross bridges to reach several resources.

5. NetBios Name_Recognize frame errors

When a workstation establishes a new session, this happens each time a new loan application is to be filled out, a broadcast based command is sent. The NetBios command is a NAME_RECOGNIZED command. This is used for the workstation to be recognized by the server for a session to be established. Since the resources are scattered, the users on ring 14 send out 30 of these frames when only one is needed. These frames cross all bridges using an All Routes Broadcast. NETBIOS will report INVALID Destination NAME frames as well.

These errors are noted on all rings listed in this report when a resource needs to go outside it's local ring.

A typical path is as follows:

R=Ring B=Bridge

For a Fax server to communicate to the Image Server

R-5 B-2 R-20 B-2 R-1

Backbone trip

R-5 B-1 R-10 B-1 R-14 B-2 R-20 B-00

Here is an sample of a typical session when the user workstation must communicate to the Imaging server outside it's local ring.

SUMMARY	Delta T	Destination	Source	Summary
M 1		400060080500	400010570205	DLC AC=18, FC=40, FS=CC LLC C D=04 S=04 RR NR=124 P
2	0.003	400010570205	400060080500	DLC AC=10, FC=40, FS=00 LLC R D=04 S=04 RR NR=122 F
3	3.914	Broadcast	400010570205	DLC AC=18, FC=06, FS=CC MAC Standby Monitor Present
4	3.767	DSCPRODOBJ	400010570205	DLC AC=18, FC=40, FS=CC RI Back (005)-1-(010)-1-(014) LLC C D=F0 S=F0 UI NETB Find name DSCPRODOBJ
5	0.006	400010570205	DSCPRODOBJ	DLC AC=10, FC=40, FS=CC RI Broadcast Fwrd (005)-1-(010)-1-(014) LLC C D=F0 S=F0 UI NETB Name DSCPRODOBJ recognized
6	0.000	400010570205	DSCPRODOBJ	DLC AC=10, FC=40, FS=00 RI Broadcast Fwrd (005)-2-(020)-2-(014) LLC C D=F0 S=F0 UI NETB Name DSCPRODOBJ recognized
7	0.000	400010570205	DSCPRODOBJ	DLC AC=10, FC=40, FS=00 RI Broadcast Fwrd (005)-1-(010)-1-(012)-2-(020)-2-(014) LLC C D=F0 S=F0 UI NETB Name DSCPRODOBJ recognized
8	0.001	400010570205	DSCPRODOBJ	DLC AC=10, FC=40, FS=00 RI Broadcast Fwrd (005)-2-(020)-2-(016)-1-(010)-1-(014) LLC C D=F0 S=F0 UI NETB Name DSCPRODOBJ recognized
9	0.001	DSCPRODOBJ	400010570205	DLC AC=18, FC=40, FS=CC RI Back (005)-1-(010)-1-(014) LLC C D=F0 S=F0 SABME P

```
10   0.001   400010570205   DSCPRODOBJ      DLC AC=10, FC=40, FS=00
                            RI  Broadcast Fwrd (005)-2-(020)-2-(001)-1-(010)-1-(014)
                            LLC C D=F0 S=F0 UI
                             NETB Name DSCPRODOBJ recognized
11   0.001   400010570205   DSCPRODOBJ      DLC AC=10, FC=40, FS=00
                            RI  Broadcast Fwrd (005)-1-(010)-1-(009)-2-(020)-2-(014)
                            LLC C D=F0 S=F0 UI
                             NETB Name DSCPRODOBJ recognized
12   0.000   400010570205   DSCPRODOBJ      DLC AC=10, FC=40, FS=00
                            RI  Broadcast Fwrd (005)-1-(010)-1-(015)-2-(020)-2-(014)
                            LLC C D=F0 S=F0 UI
                             NETB Name DSCPRODOBJ recognized
13   0.000   400010570205   DSCPRODOBJ      DLC AC=10, FC=40, FS=00
                            RI  Broadcast Fwrd (005)-1-(010)-1-(001)-2-(020)-2-(014)
                            LLC C D=F0 S=F0 UI
                             NETB Name DSCPRODOBJ recognized
14   0.001   400010570205   DSCPRODOBJ      DLC AC=10, FC=40, FS=00
                            RI  Broadcast Fwrd (005)-1-(010)-1-(002)-2-(020)-2-(014)
                            LLC C D=F0 S=F0 UI
                             NETB Name DSCPRODOBJ recognized
```

Here is a good session when an Imaging workstation is on the same ring as the Imaging server.

SUMMARY	Delta T	Destination	Source	Summary
M 1		DSCPRODOBJ	400010570211	DLC AC=18, FC=40, FS=CC
				LLC C D=F0 S=F0 UI
				NETB Find name DSCPRODOBJ
2	0.001	400010570211	DSCPRODOBJ	DLC AC=18, FC=40, FS=00
				LLC C D=F0 S=F0 UI
				NETB Name DSCPRODOBJ recognized
3	0.001	DSCPRODOBJ	400010570211	DLC AC=18, FC=40, FS=CC
				LLC C D=F0 S=F0 SABME P
4	0.001	400010570211	DSCPRODOBJ	DLC AC=18, FC=40, FS=00
				LLC R D=F0 S=F0 UA F
5	0.001	DSCPRODOBJ	400010570211	DLC AC=18, FC=40, FS=CC
				LLC C D=F0 S=F0 RR NR=0 P
6	0.000	400010570211	DSCPRODOBJ	DLC AC=18, FC=40, FS=00
				LLC R D=F0 S=F0 RR NR=0 F
7	0.001	DSCPRODOBJ	400010570211	DLC AC=18, FC=40, FS=CC
				LLC C D=F0 S=F0 I NR=0 NS=0
				NETB D=AD S=BE Session initialize
8	0.001	400010570211	DSCPRODOBJ	DLC AC=18, FC=40, FS=00
				LLC R D=F0 S=F0 RR NR=1
9	0.000	400010570211	DSCPRODOBJ	DLC AC=18, FC=40, FS=00
				LLC C D=F0 S=F0 I NR=1 NS=0
				NETB D=BE S=AD Session confirm
10	0.001	DSCPRODOBJ	400010570211	DLC AC=18, FC=40, FS=CC
				LLC R D=F0 S=F0 RR NR=1
11	0.003	DSCPRODOBJ	400010570211	DLC AC=18, FC=40, FS=CC
				LLC C D=F0 S=F0 I NR=1 NS=1
				NETB D=AD S=BE Data, 470 bytes
12	0.001	400010570211	DSCPRODOBJ	DLC AC=18, FC=40, FS=00
				LLC R D=F0 S=F0 RR NR=2
13	0.000	400010570211	DSCPRODOBJ	DLC AC=18, FC=40, FS=00
				LLC C D=F0 S=F0 I NR=2 NS=1
				NETB D=BE S=AD Data ACK
14	0.001	DSCPRODOBJ	400010570211	DLC AC=18, FC=40, FS=CC
				LLC R D=F0 S=F0 RR NR=2

15 20.057 400010570211 DSCPRODOBJ DLC AC=18, FC=40, FS=00
LLC C D=F0 S=F0 I NR=2 NS=2
NETB D=BE S=AD Data, 21 bytes
16 0.001 DSCPRODOBJ 400010570211 DLC AC=18, FC=40, FS=CC
LLC R D=F0 S=F0 RR NR=3
17 0.001 DSCPRODOBJ 400010570211 DLC AC=18, FC=40, FS=CC
LLC C D=F0 S=F0 I NR=3 NS=2
NETB D=AD S=BE Data ACK
18 0.001 400010570211 DSCPRODOBJ DLC AC=18, FC=40, FS=00
LLC R D=F0 S=F0 RR NR=3
19 0.063 400010570211 DSCPRODOBJ DLC AC=18, FC=40, FS=00
LLC C D=F0 S=F0 I NR=3 NS=3
NETB D=BE S=AD Data, 21 bytes
20 0.001 DSCPRODOBJ 400010570211 DLC AC=18, FC=40, FS=CC
LLC R D=F0 S=F0 RR NR=4

Continues untill session and LLC2 DISC is issued.

Summary of General findings

- **Overall Utilization is low on Backbones and imaging segments. These segments do experience bursts but not at levels to impact network operation..**
- **Overall statistics for Token Ring operation are clean. Little to no errors are reported.**
- **Broadcast traffic is minimal even with NAME_RECOGNIZED frames present..**
- **On backbones A and B up to 322 NAME_RECOGNIZED frames were noted during trace.**
- **Traffic levels are not the major impacting factor on the imaging system.**
- **Traffic levels between the Fax Server and Image Server is low. A periodic burst of 300+k will traverse the backbone from rings #1and #2.**
- **Traffic levels between the Optical Juke Box Server and Image Server is low. A periodic burst of 300+k will traverse the backbone from rings #1and #2.**
- **A larger percentage of the NetBios traffic crosses Backbone B.**
- **SNA sessions are intact and not affected by traffic. However, users experience a delay in processing during the ACAPs session.**
- **Image server shutting down communication to users due to session overload.**

Recommendation Section

The following recommendations can be implemented immediately and independently of each other.

1). Tune Imaging components:

NYC Bank should work with Sigma and ICG on the following:

- **Tuning imaging server for enhanced NetBios functionality. Increased session and links session capability.**
- **Request Queue threads**
- **Optimize resource allocation**
- **Amount of concurrent open session and increased clocking**
- **Controlling the amount of session per workstation to regulate optimum performance**
- **Network Buffers**
- **Request buffers**
- **Number of sessions and outstanding NetBios commands**
- **Cache buffers for all servers**
- **DASD/SCSI optimization**
- **Defining data flow points of bottleneck.**
- **Defining areas to be maintained for growth**
- **OS/2 memory and CPU thread optimization.**
- **OS/2 CACHE, paging, HPFS, FAT and Swap file settings**
- **Overall CPU, thread and process optimization.**
- **Version levels of software**

Note: A Tuning NetBios article is attached to this paper.

By having the system tuning attributes defined NYC Bankcan make the appropriate changes in terms of performance when a change is made to the system or infrastructure. NYC Bankshould know what may or may not need to be tuned when another FAX server or user is added.

2). Documenting of Tuning results for change history.

These results should be recorded for support personnel's reference when changes are made to the system.

3). Adding second Token Ring adapter to Imaging Server.

This second adapter will provide relief for the one adapter handling all of the requests from the users and fax servers.

4). The integration of a 32 bit Busmaster Token Ring adapter.

The addition of a 32 bit Token Ring controller provides added throughput from the traffic and packet levels up to the application. Also, the prioritization and arbitration mechanisms of the Busmaster controller ensure a symmetrical flow of traffic to and from the Imaging server.

5). Addition of a second Imaging server

Adding a second Imaging File server to distribute the load of requests and add additional fault tolerance. If one Imaging server can service 35 users, then two servers can service the 35 users in a optimum manner. Also, if one server is down or requires service, the other server can handle the same amount of requests, but not as efficient. Remember that the data from the Imaging servers to the Optical Juke box may need to be synchronized. The DB2 tables on each Imaging server need to see each others application queues.

6). Placing all Imaging Resources on one ring segment

A compliance from SIGMA, ICG, NYC Bankand APPLIED METHODOLOGIES, INC.representatives was reached
regarding moving the imaging resources to the user ring , ring #14. The following benefits would result:

- **Reduced overall broadcast traffic for entire network.**
- **Reduced Image workstation latency to and from server per session.**
- **Easier to isolate problems and troubleshoot.**
- **Easier to scale system and make changes, no need to address concerns of entire infrastructure.**
- **Shields Imaging users from general network issues.**
- **Shields the General network from Imaging issues.**

These issues must be addressed before executing such recommendation:

Determination of equipment; do resources stay on the 3rd floor or be physically moved to the 4th floor. This is dependent on how long the cable runs would be and if the Ring Lengths, and Jitter budgets are acceptable.

If equipment is moved up to the 4th floor, additional ports on the hub must be determined and new phone lines must be run.

The growth of the Image user population for the floor must be considered.

Note: If a new user community is to be moved to the 4th floor then a separate hub segment must be installed for that group.

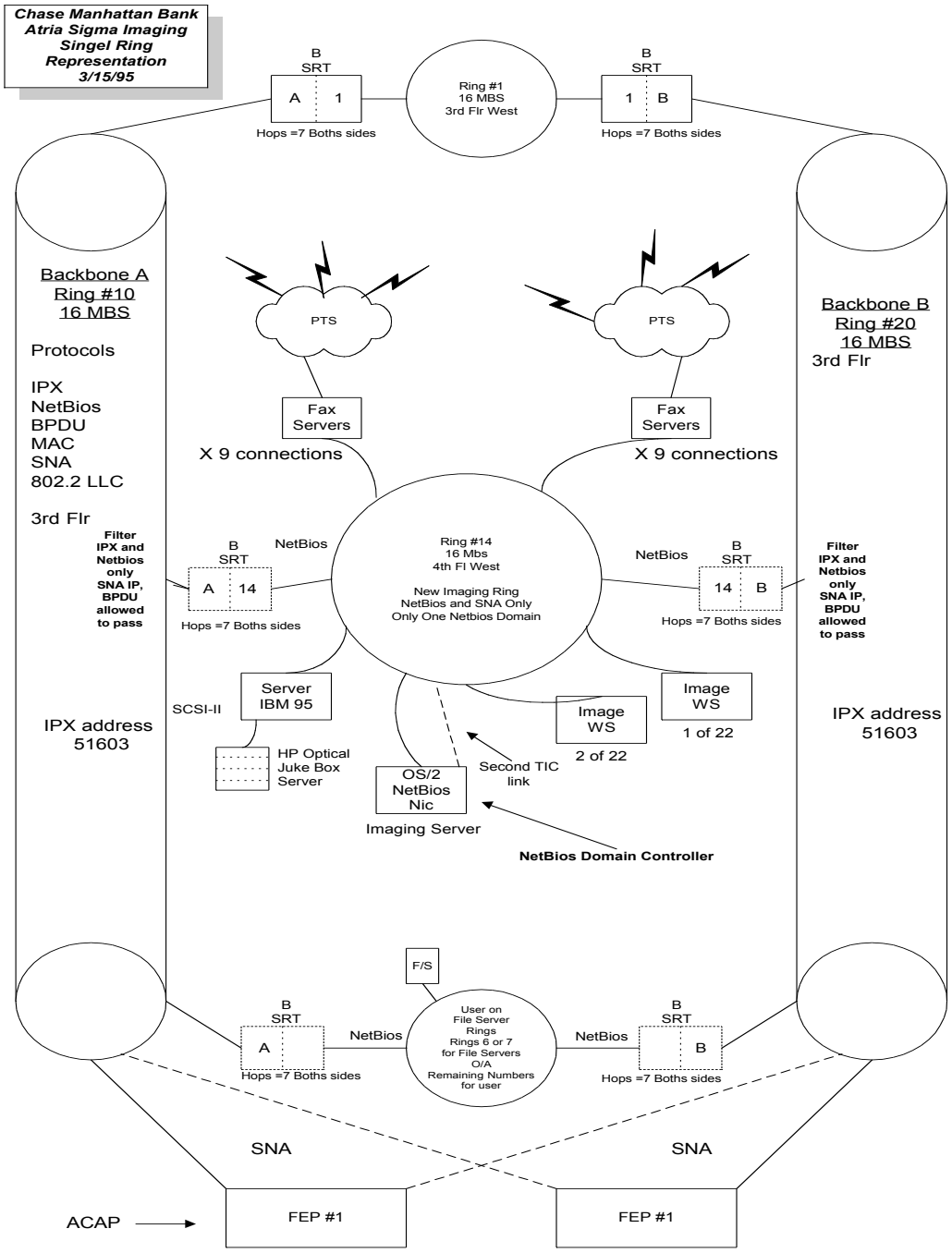
Core Design Considerations

The design considerations used for the new Imaging Ring architecture is as follows:

1. Keep NetBios traffic local.
2. Provide capacity for additional traffic loads and users.
3. Reduce single points of failure for critical data paths.
5. Scaleable bandwidth to 100+ Mbs available in future regardless of physical/electrical transmission protocol.
6. Meets present and future application bandwidth requirements.
7. Ability to manage logical and physical devices on system.
8. Works with existing cabling and hub investment.
9. Decrease response times for current and future applications.
10. Reduce latency and packet contention.
11. Provide fault tolerant capabilities.
12. Provide segmentation for traffic and fault distribution.
13. Easily scaleable through increments.
14. Network architecture that provides horizontal and vertical bandwidth scalability.
15. Simple implementation with little impact on business operations.
16. Low risk of capitol technology investment.

The Preliminary Design

The following illustration shows how the network will be represented from a physical perspective.


Chase Manhattan Bank
Atria Sigma Imaging
Singel Ring
Representation
3/15/95
B
SRT
A 1
Hops =7 Boths sides
Ring #1
16 MBS
3rd Flr West
B
SRT
1 B
Hops =7 Boths sides
Backbone A
Ring #10
16 MBS
Protocols
IPX
NetBios
BPDU
MAC
SNA
802.2 LLC
3rd Flr
PTS
PTS
Fax
Servers
Fax
Servers
X 9 connections
X 9 connections
Backbone B
Ring #20
16 MBS
3rd Flr
Filter
IPX and
Netbios
only
SNA IP,
BPDU
allowed
to pass
B
SRT
A 14
NetBios
Hops =7 Boths sides
Ring #14
16 Mbs
4th Fl West
New Imaging Ring
NetBios and SNA Only
Only One Netbios Domain
NetBios
B
SRT
14 B
Hops =7 Boths sides
Filter
IPX and
Netbios
only
SNA IP,
BPDU
allowed
to pass
IPX address
51603
SCSI-II
Server
IBM 95
HP Optical
Juke Box
Server
OS/2
NetBios
Nic
Imaging Server
Second TIC
link
Image
WS
2 of 22
Image
WS
1 of 22
NetBios Domain Controller
IPX address
51603
F/S
B
SRT
A
Hops =7 Boths sides
NetBios
User on
File Server
Rings
Rings 6 or 7
for File Servers
O/A
Remaining Numbers
for user
NetBios
B
SRT
B
Hops =7 Boths sides
SNA
SNA
ACAP
FEP #1
FEP #1

Move all the resources to ring #14. The traffic results outlined in the earlier section indicate enough capacity for all users and resources to reside on one ring. The bridges should filter IPX and NetBios, so NetBios traffic (ARB Name_Recognize frames) does not leak onto the backbones.

The IPX traffic will not be permitted on this ring. Only SNA and IP will be allowed for ACAP and SNMP information. The ring will have a single domain and controller. After GIS reviews the entire infrastructure. The information from the GIS review plus the operational performance data about this new ring will provide APPLIED METHODOLOGIES, INC.engineering the information to properly enhance the overall ATRIA infrastructure and ensure that the Imaging components fit properly into the infrastructure without compromises.

Conclusions

This concludes the Network Analysis of Chase's IMAGING RING LAN infrastructure. All of the recommendations made can be carried out providing a plan is in place.

Below is a preliminary idea on how the planning should commence.

Planning to implement any or all recommendations in this report will require these steps:

- **General information session between APPLIED METHODOLOGIES, INC.and NYC Bankabout such recommendations. This session will select and reexamine the technical and business feasibility of such recommendations.**
- **Create a master project plan outlining top level phases and steps to implement.**
- **Assign tasks and resources and set milestones.**
- **Define chronological project span.**

Project Open Items list

This list is used to track, manage and document all of the tasks that need to be executed. As each task is reviewed each week, the completed tasks will be moved to a Closed Items list. At the end of the project all of the tasks will already be documented.

1). Determine Cable lengths for Imaging resources to reach Ring 14

Assigned to: AT&T
Date assigned:
Completion date:
Resolution:

2). Determine available HUB port capacity for Ring 14 resources:

Assigned to: AT&T
Date assigned:
Completion date:
Resolution:

3). Setup Bridge filters and test for Ring 14

Assigned to: AT&T
Date assigned:
Completion date:
Resolution:

4). Define location of Imaging equipment if moved to 4th floor

Assigned to:
Date assigned:
Completion date:
Resolution:

5). Phone lines moved to 4th floor

Assigned to:
Date assigned:

Completion date:
Resolution:

6). Removal of filters on Ring 5 after move

Assigned to:
Date assigned:
Completion date:
Resolution:

7). Migration plan for moving resources to the new ring

Assigned to:
Date assigned:
Completion date:
Resolution:

8). Execute Imaging server tuning tasks

Assigned to:
Date assigned:
Completion date:
Resolution:

9). Check adapters reporting soft errors

Assigned to:
Date assigned:
Completion date:
Resolution:

10). Documentation of Tuning results

Assigned to:
Date assigned:

Completion date:
Resolution:

11). Documentation of new ring and resource location

Assigned to:
Date assigned:
Completion date:
Resolution:

12). Adding a second Token ring adapter to the Imaging server

Assigned to:
Date assigned:
Completion date:
Resolution:

13). Research into 32 bit Token ring controllers for Imaging servers

Assigned to:
Date assigned:
Completion date:
Resolution:

14). Resolution of Imaging server Threads allocation issues

Assigned to:
Date assigned:
Completion date:
Resolution:

15). Resolution of SNA delays in APACS

Assigned to:
Date assigned:
Completion date:

Resolution:

16). Resolution of FEP failure, what caused failure

Assigned to:
Date assigned:
Completion date:
Resolution:

COMMONLY-USED ACRONYMS

ARP - Address Resolution Protocol

ASIC - Application Specific Integrated Circuit

BOOTP - Boot Protocol

DASD - Direct Access Storage Device

DOD - U.S. Department Of Defense

EGP - Exterior Gateway Protocol

FTP - File Transfer Protocol

ICMP - Internet Control Message Protocol

IGP - Interior Gateway Protocol

IOP - Input Output Processor

IP - Internet Protocol

IPX - Internet Packet Exchange

LAT - Local Area Transport

MIB - Management Information Base

MOP - Maintenance Operations Protocol

NLM - NetWare Loadable Module

PROM - Programmable Read Only Memory

RIP - Routing Information Protocol

SAP - Service Access Point

COMMONLY-USED ACRONYMS [Continued]

SNA - Systems Network Architecture

SMTP - Simple Mail Transfer Protocol

WAN - Wide Area Network

SNMP - Simple Network Management Protocol

TCP/IP - Transmission Control Protocol/Internet Protocol

TFPT - Trivial File Transfer Protocol

UDP - User Datagram Protocol

TRANSPARENCIES