

From VTAM to TCP/ip at CCI
Presented by Michael Rosinger
WAVV 2003
Winston-Salem, NC

From VTAM to TCP/ip at CCI

Why TCP/IP?

- Critical to future of mainframe environment
- Brings VSE to parity with other OS's
- Closes the gap between the LAN and the mainframe
- Significantly enhances what VTAM can do
- Adds infrastructure for new functionality
- Easier access to all network printers

3

From Good to Better

- SNA dependable but complicated
- Replaces the need for NCP and a front-end processor for WAN connections
- Terminal emulation: from SNA to TN3270E
- DB2: from DRDA via SNA to DRDA via TCP/IP
- Printing: from coax/3174 to any network printer

4

Adds new functionality

- FTP
- Batch Email client
- Support for VSE2PDF
- Access to any network (IP) printer from POWER

5

Simpler

- Much shorter access path to/from DB2
- Easier to maintain and trouble shoot
- Before...* DB2 Connect/PC » TCP/IP » DB2 Server/NT » MS SNA Server » SNA » VTAM » CICS Connection (gateway) » DB2/VSE
- After...* DB2 Connect/PC » TCP/IP » DB2/VSE

6

Ease of Migration

- No need to go “cold turkey”
- Possible concurrent SNA and TN3270E
- Possible concurrent DB2/DRDA* via SNA and DB2/DRDA* via TCP/IP
- Remove “old” when “new” is stable

*Distributed Relational Database Architecture

7

Terminal Emulation

- BSI TN3270E server is *external* (outside of the stack partition)
- BSI supports two types of TN3270E servers
 - VTAM based
 - non-VTAM based
- Very easy for us to use VTAM-based

8

Terminal Emulation - Configuration

- Allocate a partition...
 - 16MB + 64K per session defined
- Configure the TN3270E server job...
 - Define available applications
 - Define terminals
 - Define printers

9

Terminal Emulation - Configuration (cont.)

- Configure terminals in VNETAPPL.b book
- Install VNETAPPL.b
- Submit/start TN3270E job
- Configure a client connection to VSE using TN3270E
- Connect!

10

TN3270E Server Job

```
// EXEC BSTTVNET,SIZE=BSTTVNET,DSPACE=3M
* >>> specify the stack and port
ID 00
OPEN VSE nnnn
* >>> specify available APPL ID's
APPLID PRODCICS Production CICS
APPLID TESTCICS TEST CICS
APPLID PHOENIX Phoenix/Cygnets+
APPLID IESWAITT
* >>> menu title
TITLE Computer Credit, Inc.
* >>> specify pool of generic terminals
TERMINAL T001 GENERIC
TERMINAL T002 GENERIC

. . . .

* >>> specify pool of IP printers
PRINTER P001 BSTTVNET
PRINTER P002 BSTTVNET

. . . .

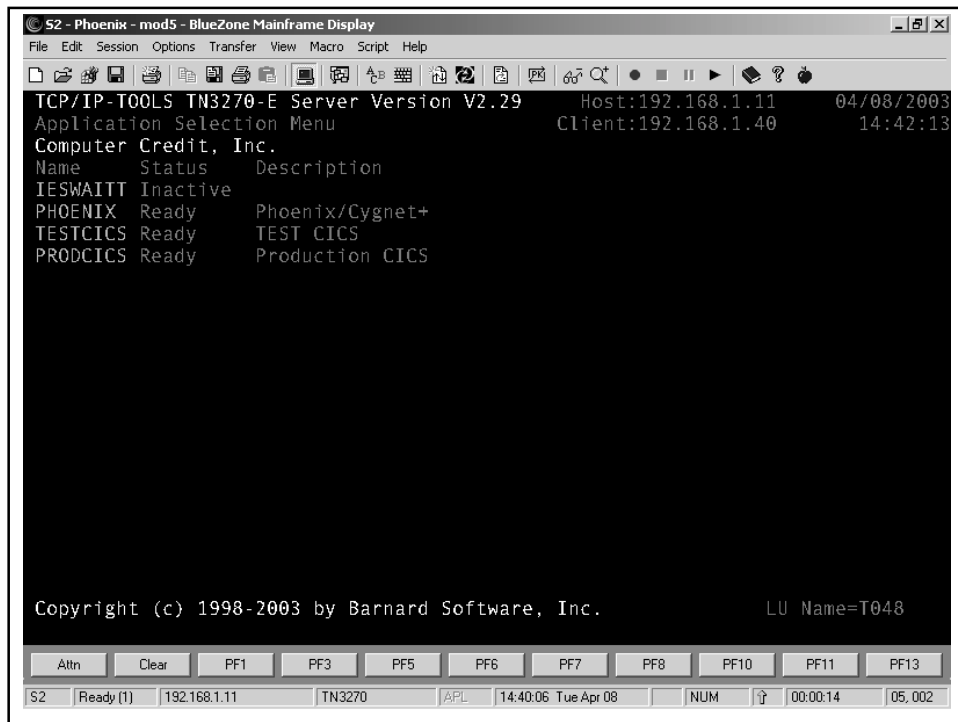
* >>> attach the server
ATTACH TN3270E
/*
```

VTAM Definitions

```
* terminal definitions for TN3270E server
VNETAPPL VBUILD TYPE=APPL
BSTTVNET APPL
BSTTUSST APPL AUTH=(PASS,ACQ)
VNETTRM GROUP MODETAB=IESINCLM,DLOGMOD=SP3272QN

* generic terminals
T001 APPL AUTH=(ACQ),EAS=1
T002 APPL AUTH=(ACQ),EAS=1
. . . .

* terminals for IP printers
VNETPRT GROUP MODETAB=IESINCLM,DLOGMOD=SPDSCPRT
P001 APPL AUTH=(ACQ),EAS=1
P002 APPL AUTH=(ACQ),EAS=1
. . . .
```



Some TN3270E “Gotchas”

- The Logon menu:
 - The *last* APPLID specified is *first* displayed
 - The *first* APPLID must be not be in *Ready* status or the menu will never display
 - Define an unused (but valid) VTAM APPL as the first item on the menu
- For ease of maintenance, the TN3270E commands should be in separate PROC

Printing

- BSI supports several methods of printing
- We exploited a very simple way using Seagull's BlueZone printer client
- Can be any printer defined to the network via TCP/IP
- Print passes through CICS report controller

15

TN3270E Printer Configuration

- Four basic components:
 - VTAM APPL definitions
 - CICS defined printer (terminal) in RDO
 - Printer (LU) via TN3270E server
 - Mainframe Printer client software* running on any server or PC connected to network

*need one instance for each printer

16

VTAM Definitions

```
* terminal definitions for TN3270E server
VNETAPPL VBUILD TYPE=APPL
BSTTVNET APPL
BSTTUSST APPL AUTH=(PASS,ACQ)
VNETTRM GROUP MODETAB=IESINCLM,DLOGMOD=SP3272QN
* generic terminals
T001     APPL AUTH=(ACQ),EAS=1
T002     APPL AUTH=(ACQ),EAS=1
. . . . .

* terminals for IP printers
VNETPRRT GROUP MODETAB=IESINCLM,DLOGMOD=SPDSCPRT
P001     APPL AUTH=(ACQ),EAS=1
P002     APPL AUTH=(ACQ),EAS=1
. . . . .
```

RDO Entries

```
EX GR(IPRNTR)
ENTER COMMANDS
NAME      TYPE      GROUP      DATE      TIME
P001     TERMINAL  IPPRNTR    01.309    07.52.18
P002     TERMINAL  IPPRNTR    01.309    07.51.48

OBJECT CHARACTERISTICS                                CICS RELEASE = 0411
CEDA View TYPeterm( VSEDSCP )
  TYPeterm      : VSEDSCP
  Group         : VSETYPE
. . . . .

OBJECT CHARACTERISTICS                                CICS RELEASE = 0411
CEDA View TErMinal( P001 )
  TErMinal      : P001
  Group         : IPPRNTR
  Description   : POWER TO CANON IR5000 VIA TCP/IP (COLLECTIONS MBOX)
  AUTINSTModel : No           No | Yes | Only
  AUTINSTName  :
TERMINAL IDENTIFIERS
  TYPeterm      : VSEDSCP
  NEtname       : P001
. . . . .
```

Sequence of startup...

- 1) Connect Mainframe Printer client to TN3270E
- 2) Start the printer as a device in POWER...
S DEV,P001,SYSCICSA,1,PARM='P001'
- 3) Acquire the terminal (printer) in CICS...
CEMT SET TERM(P001) ACQ

Order is critical!

when the handshake occurs...

```
F1 0001 1QY2I  DEVICE P001 WAITING FOR WORK,DDS=SYSCICSA
F2 0107 DFHRC5491 12/31/01 06:28:40 PRODCICS TASK 32
  TERMINAL P001 - this terminal, serving
  DESTINATION P001 has been started
```

Displaying the printer(s)...

In POWER...

```
d a,dev
AR 0015 1C39I  COMMAND PASSED TO VSE/POWER
F1 0001 1R48I  DEV,ALL,DDS=TEI,XP,
F1 0001 1R48I  DEV,P001,DDS=SYSCICSA,1,
F1 0001 1R48I  DEV,P002,DDS=SYSCICSA,2,
```

In CICS Report Controller...

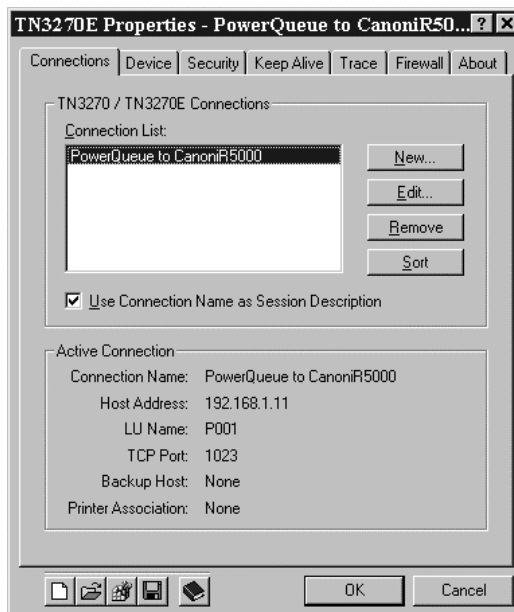
```
CEOS: 121                                PRINTER LIST
```

OPT	PRINTER	DESTINATION	STATUS	CLASS
	P001	P001	WAITING	1
	P002	P002	WAITING	2

JCL to implement it...

```
* $$ JOB JNM=CMS115,CLASS=5,DISP=D,DUETIME=1100
* $$ LST LST=52E,CLASS=Z,DISP=H
* $$ LST LST=52F,CLASS=1,DISP=D,DEST=(,P001)
// JOB CMS115          SCHEDULED PULL LIST
. . .
/&
* $$ EOJ
```

Client Configuration



Client Configuration (cont.)

Print Setup for Canon iR5000-6000 PCL5e [?] [X]

Printer / Page | Layout | Fonts | Options | Passthrough | Print To File

Spacing

Lines Per Page: 66 Characters Per Line: 198
 Lines Per Inch: 6 Characters Per Inch: 10

Double Space Lines Override Host Spacing Settings

Presentation

Print Quality: Draft Near Letter Quality
 Duplex Mode: Simplex Duplex Tumblex

Override Host Presentation Settings

Print Scaling

Scale Factor: 100

Auto-Size Fonts to fit the Paper Size

3270 OK Cancel Apply

MainFrame Printer Client

P1 - PowerQueue to Canon iR5000 - BlueZone Mainframe Printer - Output to Canon iR5000-... [] [X]

File Session Options Action View Help

Printer Profiles	Device	Paper Size	Orientation	Method of Printing
<input checked="" type="checkbox"/> Canon iR5000-600...	Canon iR5000-6000 P...	Letter	Landscape	Windows API

Job Name	Status	Size	Output

Log Name	Size	Date & Time
LstQ59.dat	3914	12-18-2001 11:09:13
LstQ58.dat	156127	12-18-2001 07:11:07
LstQ57.dat	3490	12-17-2001 10:55:53
LstQ6.dat	120938	12-13-2001 08:48:38
LstQ56.dat	2274	12-14-2001 11:56:30

P1	192.168.1.11	P001	Ready	14:34:06	04:32:01
----	--------------	------	-------	----------	----------

Printing - Summary

- Facilitated printing from POWER to *any* network printer with minimal effort
- No 3rd party VSE software needed - BSI TN3270E server already in use
- Provided quicker access to reports
- Reduced bottleneck with the Xerox 4135

25

A “Gotcha” using this type of TN3270E Printer

- The sequence of the commands to start the printer(s) is critical...
 - First, connect the printer client to TN3270E
 - Next, start the printer device in POWER
 - Finally, acquire the terminal (printer) in CICS

26

For More Information...

- Barnard Software:

- IP stack, TN3270E, FTP, Batch email, more...

- <http://www.bsiopti.com/>

- Seagull Software:

- TN3270E client, FTP client, printer client, session manager, more...

- <http://www.seagullsw.com/>