

# Converting from CSI to BSI : User Experiences

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WAVV 2003

## Agenda

- Virtual storage organization
- The IP stack
- TN3270 display sessions
- Sockets programming
- Autoftp, batch ftp, ftp server
- 3270 printing
- Autolpr
- Inserts coding
- Summary
- Questions?

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## Virtual Storage Organization

### CSI

- TN3270 daemons, ftp daemons, autoftp, autolpr all run in same partition as IP stack
- Different partition priorities for TN3270 vs. FTP/LPR require multiple IP stacks
- Introduced multiple network cards or dependencies between partitions

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## Virtual Storage Organization

### BSI

- Separate dynamic partition for each function
- More granularity of control
- More virtual storage allocation, especially 31 bit
- Customer increased VSIZE and DPD space to allow for additional dynamic partitions

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# Virtual Storage Organization

## BSI

### Sample partition allocation:

Q1	6M	autolpr process
Q2	6M	autolpr print jobs
R1	6M	autoftp process
R2	6M	autoftp transfer jobs
S1	24M	IP stack for ftp/lpr
T1	24M	IP stack for tn3270
T2	24M	tn3270/3270 printing sessions
U1	20M	ftp server

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# IP Stack

## CSI

```
SET IPADDR=172.16.1.252
SET MASK=255.255.252.0
DEFINE LINK,ID=OSA,TYPE=3172,DEV=600,MTU=4096
DEFINE ADAPTER,LINKID=OSA,NUMBER=0,TYPE=TOKEN_RING
DEFINE ROUTE,ID=WORLD,LINKID=OSA,IPADDR=0.0.0.0, -
    GATEWAY=172.16.1.1
SET DNS1=172.16.1.222
DEFINE NAME,NAME=SERVER00,IPADDR=172.16.1.254
DEFINE TELNETD ...
DEFINE FTPD ...
DEFINE EVENT ...
```

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# IP Stack

## BSI

```
DEVICE LCS600 LCS 600 TOKENRING
LINK LCS600 1 172.16.1.252 255.255.252.0 4096
ROUTE LCS600 172.16.0.0 255.255.252.0 172.16.1.1 0
ROUTE LCS600 0.0.0.0 0.0.0.0 172.16.1.1 1
HOST SERVER00 172.16.1.254
DNS 172.16.1.222
```

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# TN3270 Display Sessions

## CSI

- Customer used multiple port numbers to control target CICS partition, terminal id prefix
- DEFINE TELNETD,ID=H0,COUNT=10,PORT=23,TARGET=PRODCICS
- DEFINE TELNETD,ID=H5,COUNT=10,PORT=5000,TARGET=PRODICCF
- DEFINE TELNETD,ID=FS,COUNT=10,PORT=6000,TARGET=PRODCICS
- Port number was specified in client TN3270 definition

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## TN3270 Display Sessions

### BSI

Two options:

- One TN3270 partition for each port (customer decided that would be too many)

or

- One TN3270 partition (T2) at port 23 with multiple pools defined (IP stack for TN3270 runs in T1)
- Change TN3270 client definition to use TN3270E LU/Resource name to specify the proper pool

## TN3270 Display Sessions

```
// EXEC BSTTVNET,SIZE=BSTTVNET,DSPACE=3M
ID 01
OPEN 10.28.209.28 23
APPLID PRODICCF VSE1 ICCF
APPLID PRODCICS VSE1 CICS
TERMINAL H001 GENERIC PRODCICS DEDICATE POOL H0CICS
TERMINAL H002 GENERIC PRODCICS DEDICATE POOL H0CICS
TERMINAL H501 GENERIC PRODICCF DEDICATE POOL H5ICCF
TERMINAL H502 GENERIC PRODICCF DEDICATE POOL H5ICCF
TERMINAL FS01 GENERIC PRODCICS DEDICATE POOL FSCICS
TERMINAL FS02 GENERIC PRODCICS DEDICATE POOL FSCICS
ATTACH TN3270E
/*
```

# Sockets Programming

- In house assembler e-mail client was replaced by email client included in TCP/IP Tools.
- REXX programs using CSI sockets were converted to use IBM REXX sockets, which is compatible with TCP/IP Tools

# Autoftp

## CSI

- Created with DEFINE EVENT in partition
- Specify class to monitor
- Uses autoftp scripts to control ftp session

# Autoftp

## BSI

- REXX program running in partition to monitor POWER class (R1)
- Highly customizable
- Creates appropriate JCL that is submitted to execute in another partition (R2)
- REXXAFTP from Rich Smrcina reproduces the reading of the autoftp script and generates the proper ftp commands

# Autoftp

## Behavioral Difference

After cutover, customer discovered that an ftp script had CD to invalid directory

- CSI ignored the error and put the file to the last valid directory
- BSI gives an error and exits.

# Batch ftp

## CSI

```
// DLBL INFILE,'BF.WORK.H0590A.#05',,VSAM,CAT=CSYSWK6
// EXEC FTPBATCH,SIZE=FTPBATCH
LOPEN
EXECUTE 139LOGIN.L
CD REG\OP\SHARED\DOWN
PUT  %INFILE,ESDS,F,0128 FMASTCR.TXT
QUIT
/*
```

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# Batch ftp

## BSI

```
// DLBL INFILE,'BF.WORK.H0590A.#05',,VSAM,CAT=CSYSWK6
// EXEC BSTTFTPC,SIZE=BSTTFTPC
* $$ SLI MEM=139LOGIN.L
CWD REG\OP\SHARED\DOWN
INPUT VSAM INFILE
STOR FMASTCR.TXT
QUIT
/*
```

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## Batch ftp

- There are JCL differences between CSI and BSI
- FTPCONV from Gregg Miller helps convert jobstreams from CSI to BSI format
- Exceptions:
  - SETVAR &ERROR='IGNORE'
  - Variable substitution (&CURDATE, &CURTIME)

## FTP Server

- CSI     DEFINE FTPD in partition
- BSI     FTPSERVE partition (U1)

Customer used Keymaster on PC for data entry, then executed batch file to ftp job and data into POWER RDR queue. No changes were required on PC coding.

## 3270 Printing

### CSI

GPS (Generalized Print Server)

- Optional Feature
- Takes 3270 datastream, converts EBCDIC to ASCII, uses LPR to send to network printer
- Daemon is defined in the partition

```
DEFINE GPSD, ID=HSP1, STORAGE='PRD2.TEMP', -  
    IPADDR=HS139, TERMNAME=HSP1, PRINTER=DEFLJ3, -  
    INSESS=YES, TARGET=PRODCICS, INSERTS=L681
```

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## 3270 Printing

### BSI

TN3270 Printing

- Included in the base product
- Printer is defined in the TN3270 partition

*	lu	applid	ip addr	port	inserts	queue
DIRECT	HSP1	V1ACICS1	HS139	515	L681	DEFLJ3

The change from GPS to TN3270 printing was very straightforward.

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## Autolpr

### CSI

- DEFINE EVENT in partition
- Specify class to monitor
- Uses autolpr scripts to control printing
- Script name is specified in the USER parameter of the \* \$\$ LST card

## Autolpr

### BSI

- REXX program running in partition (Q1) to monitor LST class
- Creates appropriate JCL that is submitted in another partition (Q2) to print LST queue entry
- REXXALPR from Gregg Miller reads the autolpr script for the host and print queue names, then generates the proper lpr commands
- LST card in original job must specify the INSERTS name on the UCS parameter

## Inserts Coding

### CSI

- Inserts phase contains printer control commands (hex)
- Assembled and link-edited
- Can be challenging to read

```
// OPTION CATAL
// EXEC ASSEMBLY
      PRINT NOGEN
L681  INSERTS DEFINE,
      HEADER=1B451B28733133481B266C314F1B266C3638501B266C38441*
      B266C34451B266C334C,
      TRAILER=1B45
      END
/*
// EXEC LNKEDT
```

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## Inserts Coding

### BSI

- Inserts member contains printer control commands (decimal)
- Source member that is cataloged
- Easily commented

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## Inserts Coding

### BSI

```
CATALOG L681.I REPLACE=YES
* L681
* RESET to printer defaults
HEADER 027 069
* 13 CPI 13 = ASCII X'3133' = 049 051
HEADER 027 040 115 049 051 072
* LANDSCAPE
HEADER 027 038 108 049 079
* 68 LINES PER PAGE 68 = ASCII X'3638' = 054 056
HEADER 027 038 108 054 056 080
* 8 LINES PER INCH 8 = ASCII X'38' = 056
HEADER 027 038 108 056 068
* TOP MARGIN 4 LINES 4 = ASCII X'34' = 052
HEADER 027 038 108 052 069
* LEFT MARGIN 3 COLUMNS 3 = ASCII X'33' = 051
HEADER 027 038 097 051 076
* RESET to printer defaults
TRAILER 027 069
/+
```

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## Summary

- Additional virtual storage needed
- FTP was the area that required the most I T staff effort - much of it in creating the REXX tools to automate the conversion
- TN3270 conversion was a small effort for the I T staff, but did require TN3270E client session updates

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Questions ?

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