Web Serving on OS/390, A User Experience

Annette Miller

Lead Technical Support Specialist

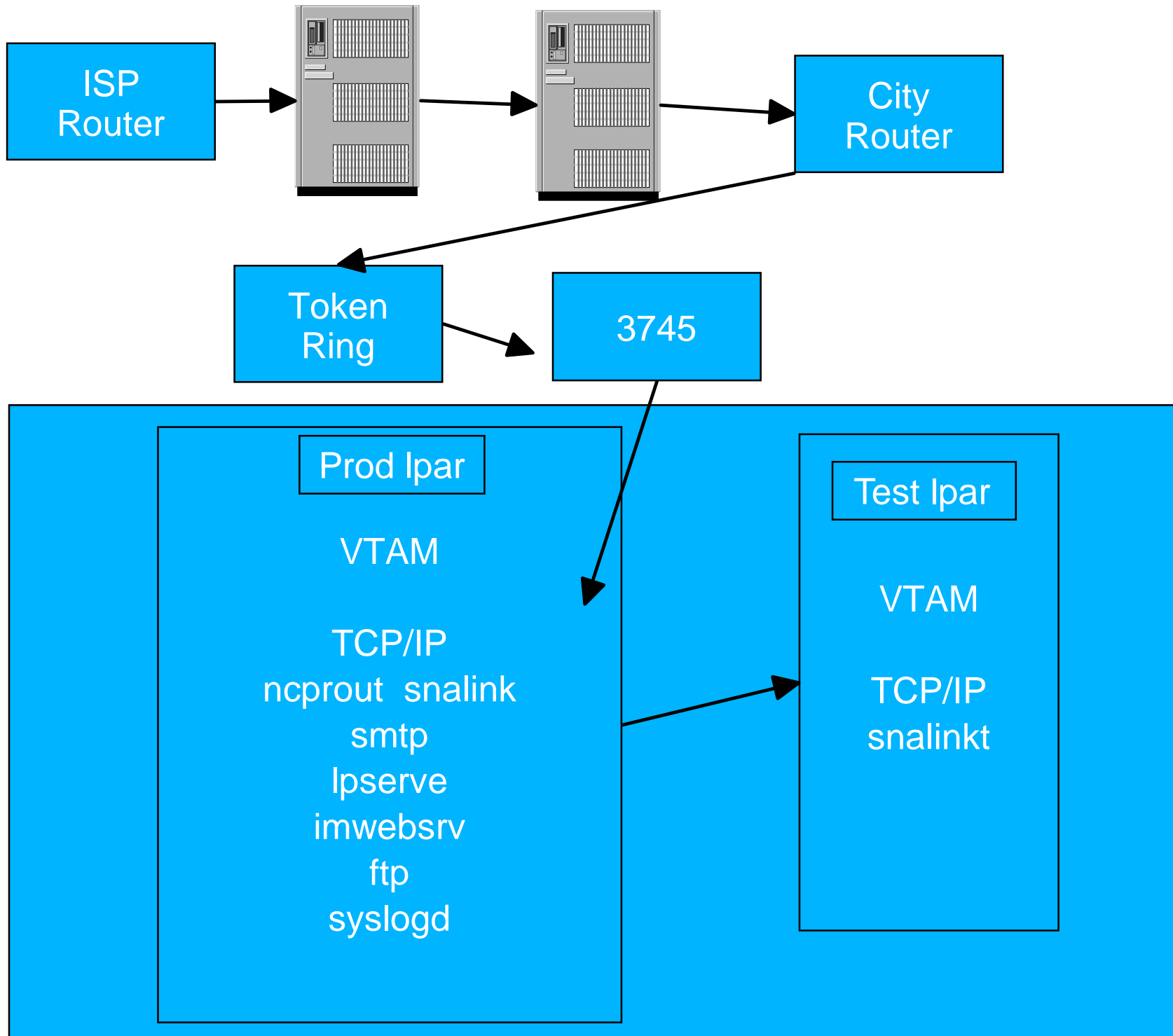**City of Lincoln Information Services**

Lincoln, Nebraska

Agenda

- System configuration
- Hints
  - ICSS
  - OE
- Configuration file, protection directives
- CA-Top Secret, OE, and ICSS
- Using Diagnostic Information
- Formatting other legacy data for the web
- Other sources for information

Shop Profile

- ES/9000-411
- OS/390 2.5
- DB/2 5.0
- TS 1.2
- CA-TSS 5.0
- TCP/IP 3.4
- VTAM 4.4.1
- 1800 Mainframe users

- 200 DEC users
- AS/400s
- High speed network
- 1300 PCs
- Novell file servers
- Misc NT & UNIX servers

MVS Sysprog meets UNIX

- Strange file names
- Permission bits
- Cryptic commands
- Processes and forking children

ISP Router

City Router

Token Ring

3745

Prod lpar

VTAM

TCP/IP
ncprout snalink
smtp
lpserve
imwebsrv
ftp
syslogd

Test lpar

VTAM

TCP/IP
snalinkt

5

Installing ICSS 2.2

- SMP/E install - program directory
- Activating ICSS -
  - ICSS Planning for Installation GC31-8489
  - Installing for the first time
    - Access control & surrogate ids
      - %%client%% & public surrogate
    - MakeTCP/IP config adjustments
    - Use -vv trace during testing phase - turn off for production
   - MAINTENANCE!!!
- Parmlib IPS/ICS in Appendix

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Links

City of Lincoln Home Page. GDDM graph. FMID List.

This is an unordered list with three items:

- item one
- item two
- item three

Document: Done
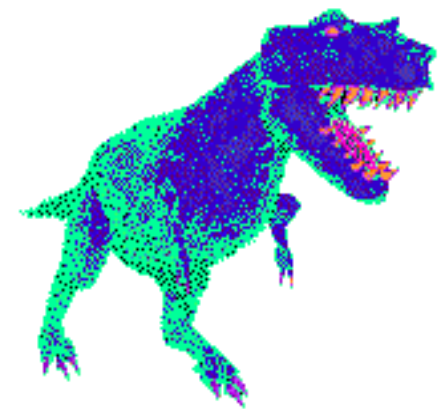
Miscellaneous hints about OE install

- Implementation with ESA 5.2.2
  - Need to define OMVS in IPS & ICS - won't initialize with defaults
- Use informational apar OW26445 (OS/390 1.3)
  - More detailed information to supplement ServerPak install instructions for setting up the OE environment

Miscellaneous hints about OE install *(continued)*

- Sticky bit
  - Bypass loading of an executable from the HFS. If on, MVS will use the standard MVS search order to look for a copy of the executable in an MVS load library.

ICSS 2.2 & OS/390 2.5

- Security Changes
  - All userids now need access to steplibs in webserver proc
  - Webserver id now needs access to batch
- Spawned processes in different initiators
  - Now started by WLM instead of ASCH
  - BPXAS address spaces instead of ASCHINT

HTTPD.CONF

- Userid
  - Defines the default surrogate MVS Userid that will be used if not overridden by a protection set-up that matches the request.
  - Userid %%CLIENT%% may be used instead of a surrogate Userid. Client must supply a valid local MVS Userid/password.
- DirAccess
  - We turn off directory browsing

HTTPD.CONF *(continued)*

- Protect & Protection directives
  - ▲ Protect directives establish who can access a protected resource.
    - ● DefProt (default protect) and Protect directives must be defined before any Pass or Exec directives.
  - ▲ Protection directives define a protection setup.
    - ● Protection directives must be defined before any protect directives that point to them.

Using Protection Directives

Web Administration Configuration Application Protection

```
Protection IMW_Admin {
      ServerId          IMWEBSRV_Administration
      AuthType          Basic
      PasswdFile        %%SAF%%
      Mask              WEBADM,webadm  }
Protect /admin-bin/*  IMW_Admin webadm
Protect /Usage*          IMW_Admin webadm
```

Protection for public requests from outside the firewall

```
Protection interlinc {
      ServerId          interlinc
      AuthType          Basic
      UserId            PUBWWW
      Mask              Anybody   }}
Protect /acttest/*      interlinc
Protect /public/*       interlinc
Protect /pub-cgi/*      interlinc
```

Setting up Public Surrogate

- Create MVS user id with resource permission - surrogate bpx.srv.pubwww
- MVS user id matches user id in Protection directive.
- Third qualifer in surrogat resource matches the user id in the Protection directive.
- Used to access DB2 with Net.Data macros. Request spawns an address space with the name PUBWWW.

CA-Top Secret, OE, and ICSS

- CA-Top Secret 5.0 genlevel 9605 or higher with apar LO05246
- Product Maintenance Letter - LI06138
  - ▲ Lists deviations and equivalent commands when installing ICS or ICSS with CA-Top Secret instead of RACF
- Using the ISHELL with CA-TSS requires the following modification:
  - ▲ Copy CAI.TSSOPMAT(BPXWIRAC) to SYSPROC or SYSEXEC library. This replaces the IBM exec.

CA-Top Secret, OE, and ICSS *(continued)*

- Reporting
  - SMF record type 231
  - Report utility - TSSOERPT
    - requires apar LO19728
- Tracing
  - ST EN,OPENMVS
  - F TSS, SECTRACE(ACT,WTL)

DGW, Top Secret, Servlets

- IMW0240E Access denied - unauthorized program loaded.
  - Resolution - turn on program control bit in java native_threads directory
  - extattr +p *.*
  - Requires user to have bpx.fileattr.progctl access to set the bit
- According to TSS support...
  - No call is made to security to determine if a program is under program control. Call is made by Contents Supervisor to see if bit is on.

Net.Data Install

- SMP/E install.
- Install executables and DLLs
  - Add an Exec directive for netdata cgi requests.
  - Add Net.Data cgi-bin directory to LIBPATH in envvars.   OR
  - Move executables & DLLs to the webserver's cgi-bin directory.

Net.Data Install *(continued)*

- Install and customize configuration file - DB2WWW.ini.
  - ▲ This must be copied to the webserver's document root directory, which is specified in the httpd.conf file by the Pass directive "/*".
  - ▲ Example of DB2WWW.ini in Appendix
- Install icons, documents and applets
  - ▲ Add Pass directives to httpd.conf file

Net.Data Install *(continued)*

- Set up the REXX language environment
  - ▲ Add DTW.SDTWLOAD to the IMWEBSRV proc steplib
  - ▲ Authorize the library
- Set up the SQL language environment
  - ▲ Make sure SDSNLOAD is in linklist or in IMWEBSRV proc steplib
- Create and load sample tables
- Customize sample macros with the userid of the owner of the tables.
- Bind the plan

Net.Data Install *(continued)*

- Installation Notes
  - If you choose to move the executables and DLLs to the webserver's cgi-bin directory
    - These copies must be manually refreshed when maintenance is applied to Net.Data.
    - Ensure that the permissions for Net.Data executables and DLLs and each directory in the path to these files are 755. May change when copying files.
  - Use the very verbose trace or security reports to verify paths being used.
  - File permissions for DB2WWW.ini must be 644.

Net.Data - ICAPI

- http.conf
  - ServerInit   DB2WWW:dtw_init
  - Service   /cgi-bin/db2www*
          DB2WWW:dtw_icapi*
- http.envvars
  - Do not put net.data in libpath
- Executing net.data from MVS library
  - Link dlls into authorized pds - include object code from hfs

Net.Data ICAPI Threads

- Uses RRS Attach facility to access DB2
- Value of maxactivethreads in httpd.conf is the number of DB2 threads that Net.Data can use
- Net.Data creates a new thread when any of the following criteria change:
  - ▲ userid, db2plan, db2ssid, webserver thread
  - ▲ reuses thread if none change
- DB2 threads will be released only when webserver terminates

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Lancaster County

Election Commissioner
Polling Place Look-up

Please enter your residential address.

Number	Prefix	Street Name	Type	Suffix
7616	▼	Ali	DR ▼	▼

City   Lincoln ▼

[Submit Query]   [Street Help]   [Reset]

Street Number and Name are required for query look-up.
To do Street Help, you can fill-in the first couple of characters in street name to create a valid list of streets.
For numbered streets, include the st, nd, rd, and th. Ex: 1st, 2nd, 3rd, and 4th.

Document: Done

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Great Plains DB2 Forum

Contact Look-Up

Contact Name	Telephone	Email
AD&D CONSULTING		
MAURICE, JOEL	712-3239989	
ADVANCED BUSINESS CONSULTANTS		
WIESNER, ERIC	402-3518602	eric.wiesner@mutualofomaha.com
ALIANT		
LICKEI, ALBERT	402-4364118	
WARD, EDNA	402-4364266	eward@aliant.com
ALLENDAR AND ASSOCIATES		
ALLENDER, KERRI KAY	402-3912700	kka@allenderassoc.com
ALLIED GROUP		
ORTMANN, MARY	515-2804359	
STURGEON, FLOYD	515-2804821	
AMERUS LIFE		
FELTON, JOHN	515-2832371	
BERKSHIRE HATHAWAY		
PETZKE, DOUG	0-0	nico2962@aol.com

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Bookmarks   Location: http://lancjes2.ci.lincoln.ne.us:8080/dpdcep/dutdate.htm

DUTDATE

Function:	Get Current Date ▼		
Date 1:			
Date 2:			
Out Type:	Window:	Execute	Reset

Date	08/12/1998	
Week	4	WEDNESDAY
Month	08	AUGUST
Leap	0	Non-Leap Year
RC	0	Successful

Date type:

The following are character formats:

```
00   MM/DD/YYYY   (default date type)      01/
01   MM/DD/YY                              01/
02   MMDDYYYY                              010
03   MMDDYY                                010

10   YYYY-MM-DD                            199
11   YY-MM-DD                              97-
12   YYYYMMDD                              199
13   YYMMDD                                970

20   YYYY/DDD                              199
21   YY.DDD                                97.
22   YYYYDDD                               199
23   YYDDD                                 970

30   MMM ZD, YYYY                          JAN
31   MMM ZD, YY                            JAN
32   MMMMMMMZ ZD, YYYY                     JAN
33   MMMMMMMZ ZD. YY                       JAN
```

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