z/OS Introduction and Workshop

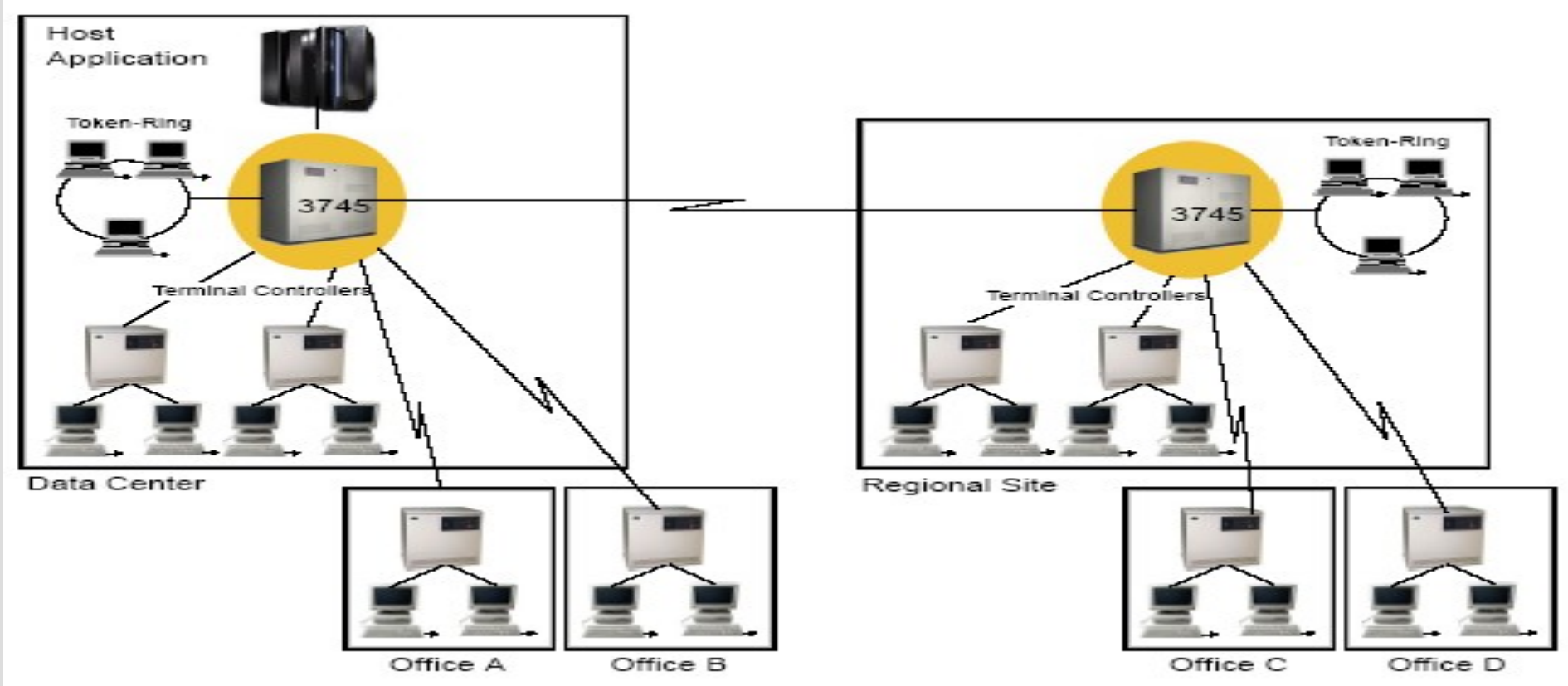
Communications Server

Unit objectives

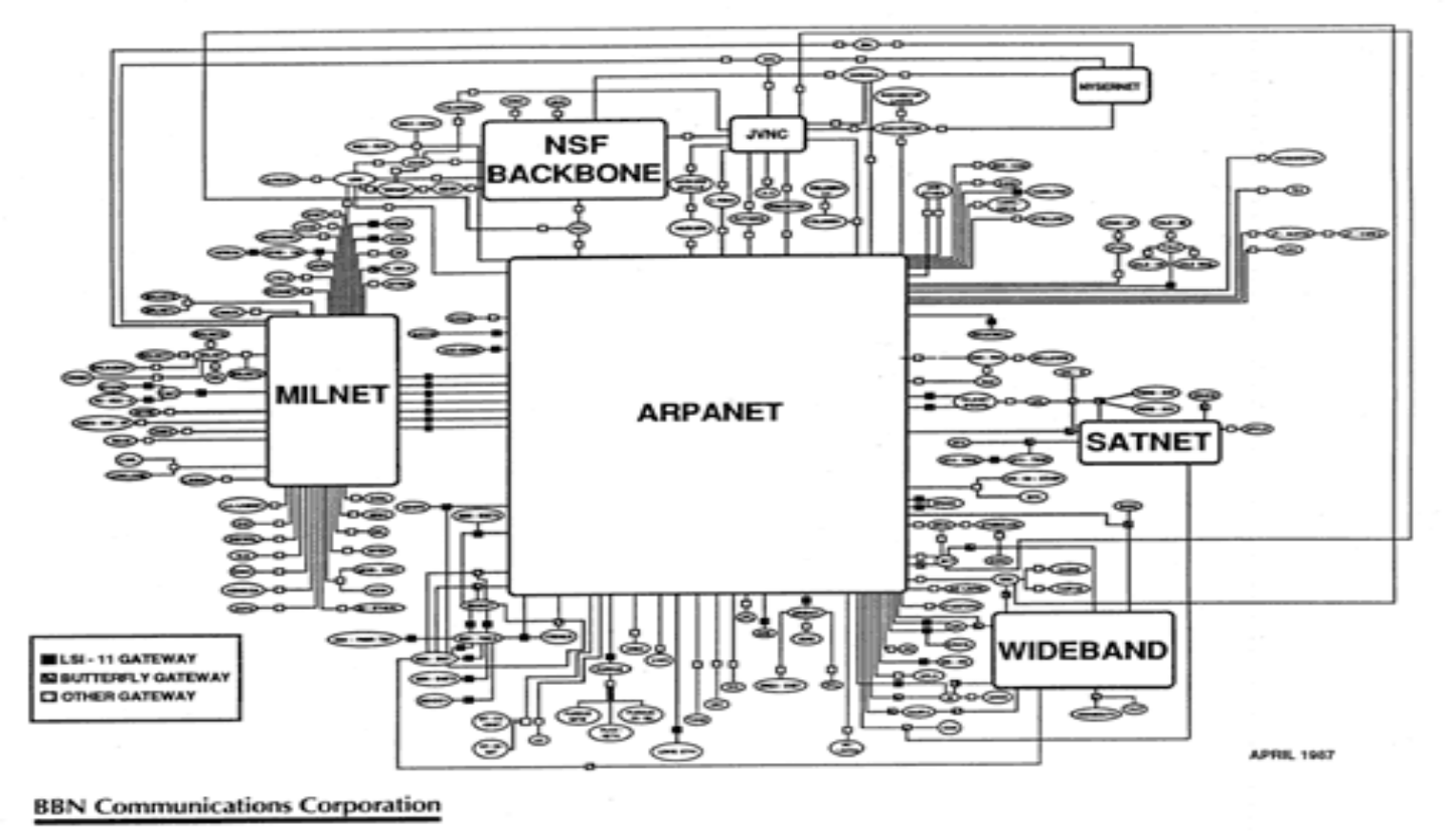
After completing this unit, you should be able to:

- Describe TCP/IP
- Describe SNA and VTAM
- List major components of Communications Server
- Describe IBM Z OSA
- List network security features available with Communications Server

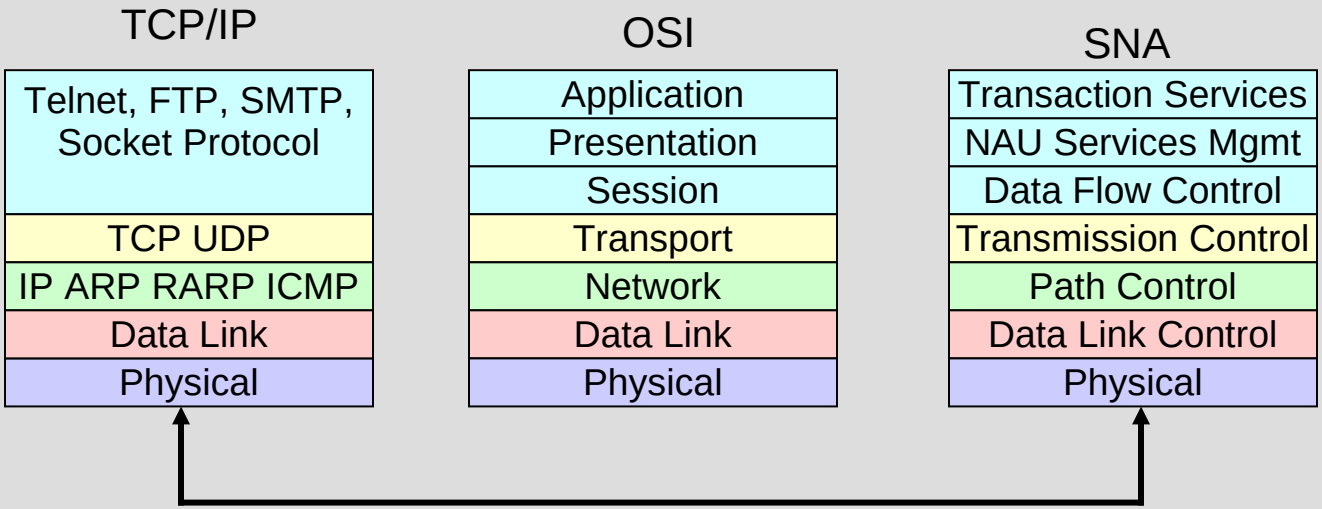
SNA Subarea Network - 1980's



TCP/IP ARPANET - 1980's



Open Systems Interconnect (OSI) network model



Communications Server - TCP/IP

IBM implementation of the standard TCP/IP protocol suite on the z/OS platform.

Provides the industry-standard TCP/IP protocol suite allowing z/OS environments to share data and computing resources with other TCP/IP computing environments.

When authorized. CS for z/OS IP enables anyone in a non-z/OS TCP/IP environment to access resources in the z/OS environment

Communications Server for z/OS

Supplied with z/OS and enabled by Unix System Services

Provides networking services (API) to SNA and TCP/IP applications

Connects the mainframe to the external world

3 Major Components

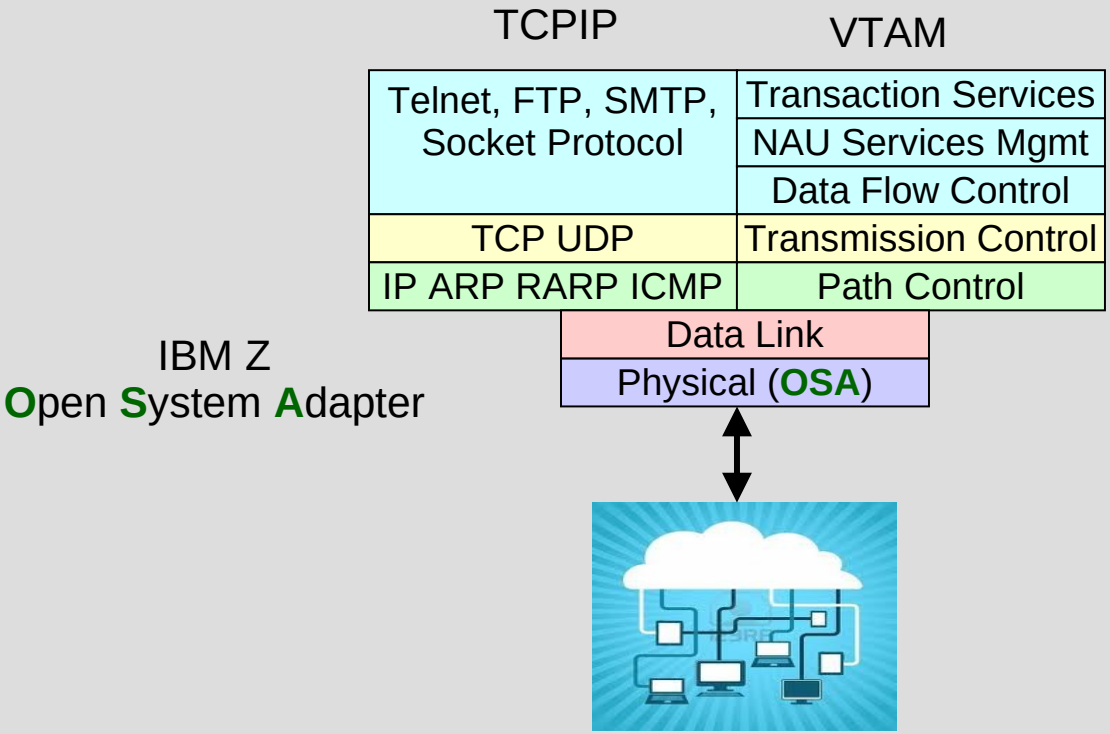
1. VTAM – Virtual Telecommunications Access Method (SNA)
2. CSM – Common Storage Management (controlled by VTAM)
3. TCPIP – Uses CSM for network IO buffering

VTAM & TCPIP Address Spaces

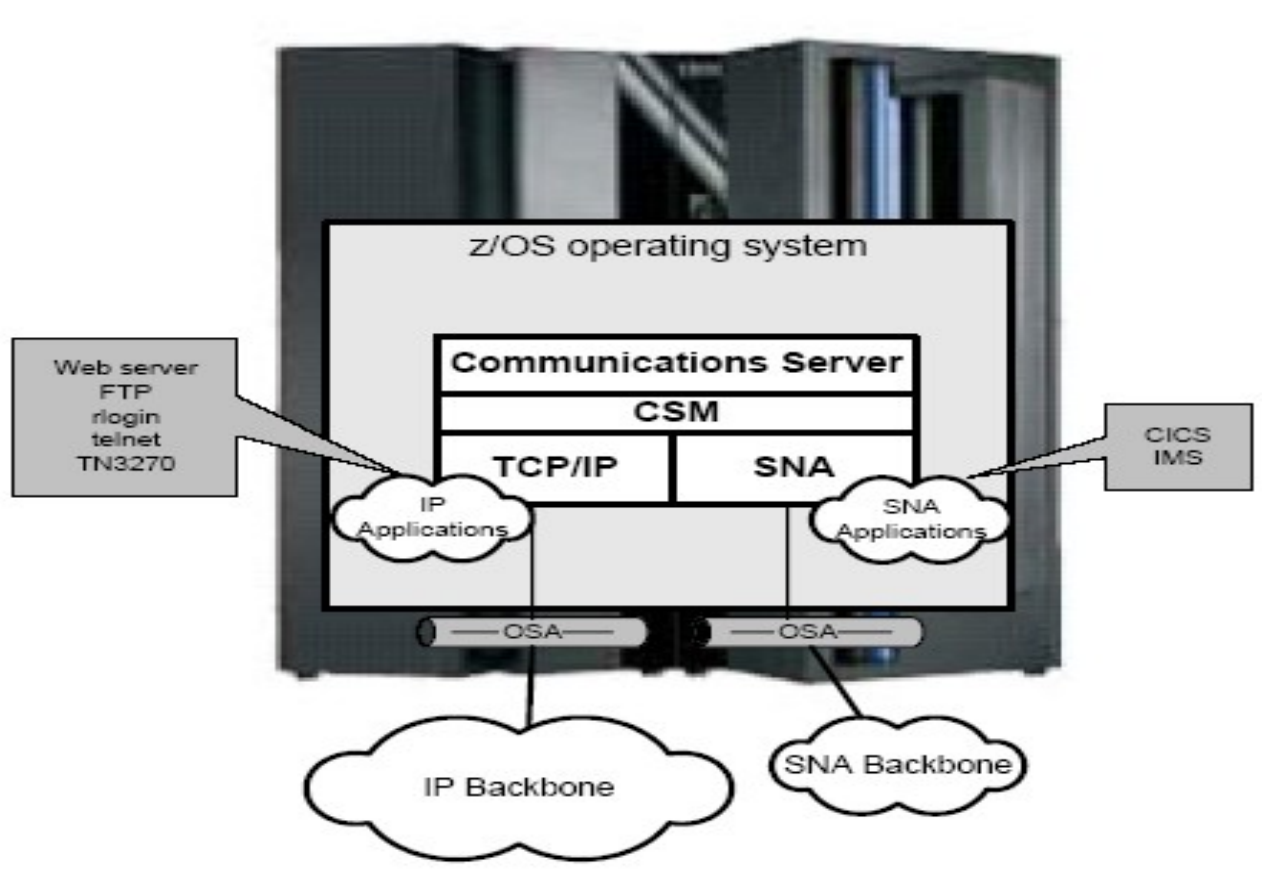
```
//VTAM   EXEC PGM=ISTINM01,REGION=5M
//VTAMLST DD DISP=SHR,DSN=VENDOR.VTAMLST
//         DD DISP=SHR,DSN=SVTSC.VTAMLST
//         DD DISP=SHR,DSN=LVL0.VTAMLST
//         DD DISP=SHR,DSN=SYS1.VTAMLST
//VTAMLIB DD DISP=SHR,DSN=VENDOR.VTAMLIB
//         DD DISP=SHR,DSN=SVTSC.VTAMLIB
//         DD DISP=SHR,DSN=LVL0.VTAMLIB
//         DD DISP=SHR,DSN=SYS1.VTAMLIB


//TCPIP   EXEC PGM=EZBTCPIP,PARM='&PARMS'
//STEPLIB  DD DISP=SHR,DSN=VENDOR.VTAMLIB
//         DD DISP=SHR,DSN=SVTSC.VTAMLIB
//         DD DISP=SHR,DSN=LVL0.VTAMLIB
//PROFILE  DD DISP=SHR,DSN=VENDOR.TCPPARMS(&SYSNAME)
//SYSTCPD  DD DISP=SHR,DSN=TCPIP.TCPIP.DATA
```

Communications Server



Communications Server for z/OS - Implementation



Communications Server for z/OS - Implementation

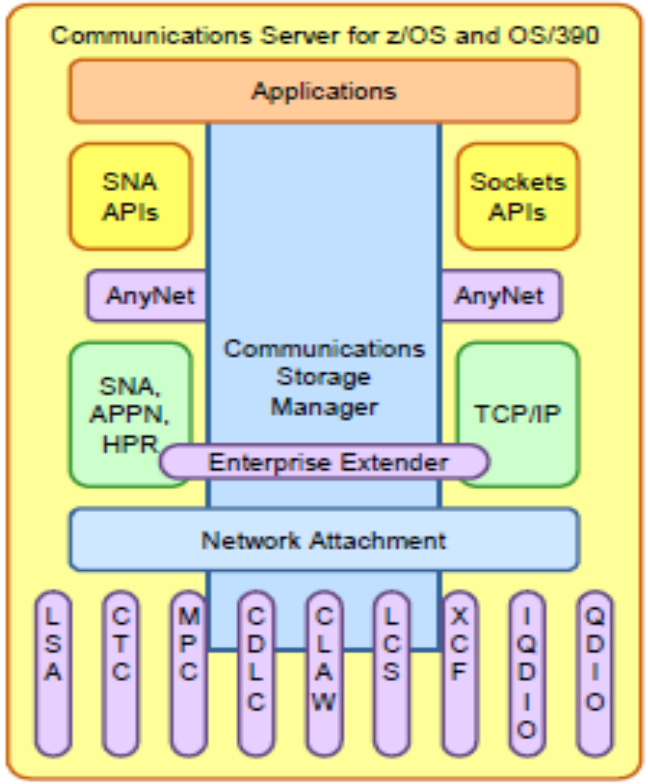
z/OS Communications Server (CS) Description

Integrated Services

- Provide common services within CS for z/OS and OS/390
  - Network attachment
  - Storage management
  - High Performance Data Transfer
- TCP/IP and SNA integration
  - TN3270
  - Network access
  - Internal optimizations
  - Enterprise Extender
- Standard TCP/IP applications

Multi-protocol Solutions

- Sockets (TCP/IP) applications
  - Unix services offers zSeries and s/390 users access to a wide range of UNIX-based applications over IP or SNA networks
- SNA applications
  - SNA applications are supported over SNA or IP networks



VTAM, CSM & TCPIP Commands

D NET ..... VTAM Commands
D NET ..... CSM Commands
D TCPIP .... TCPIP Commands

D NET,ID=OSATRL1E

```
PORTNAME = DEVOSA1    PORTNUM = 0
 WRITE DEV = 0401 STATUS = ACTIVE
 READ  DEV = 0400 STATUS = ACTIVE
 DATA  DEV = 0402 STATUS = ACTIVE
```

D NET,CSMUSE

```
AMOUNT OWNERID  JOBNAME
80K    0027     TCPIP
28K    0024     VTAM
```

D TCPIP,,NETSTAT,HOME

```
ADDRESS          LINK
204.90.115.184   OSDL
```

VTAM and TCPIP Setup

VTAM Parameters

```
OSATRL1 VBUILD TYPE=TRL
OSATRL1E TRLE LNCTL=MPC,
              READ=(0400),
              WRITE=(0401),
              DATAPATH=(0402),
              PORTNAME=DEVOSA1,
              MPCLEVEL=QDIO
```

TCPIP Parameters

```
DEVICE DEVOSA1  MPCIPA NONROUTER
LINK OSDL IPAQENET DEVOSA1
HOME
  204.90.115.184 OSDL
```

D U,,ALLOC,400,3

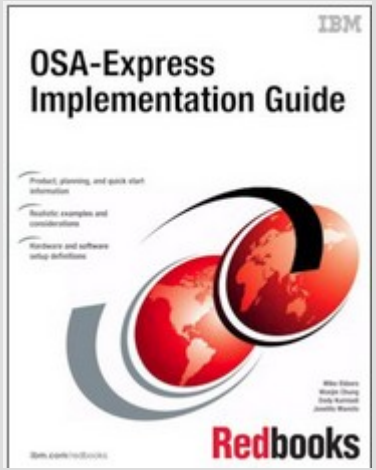
```
UNIT    JOBNAME
0400    VTAM
0401    VTAM
0402    VTAM
```

D TCPIP,,NETSTAT,HOME

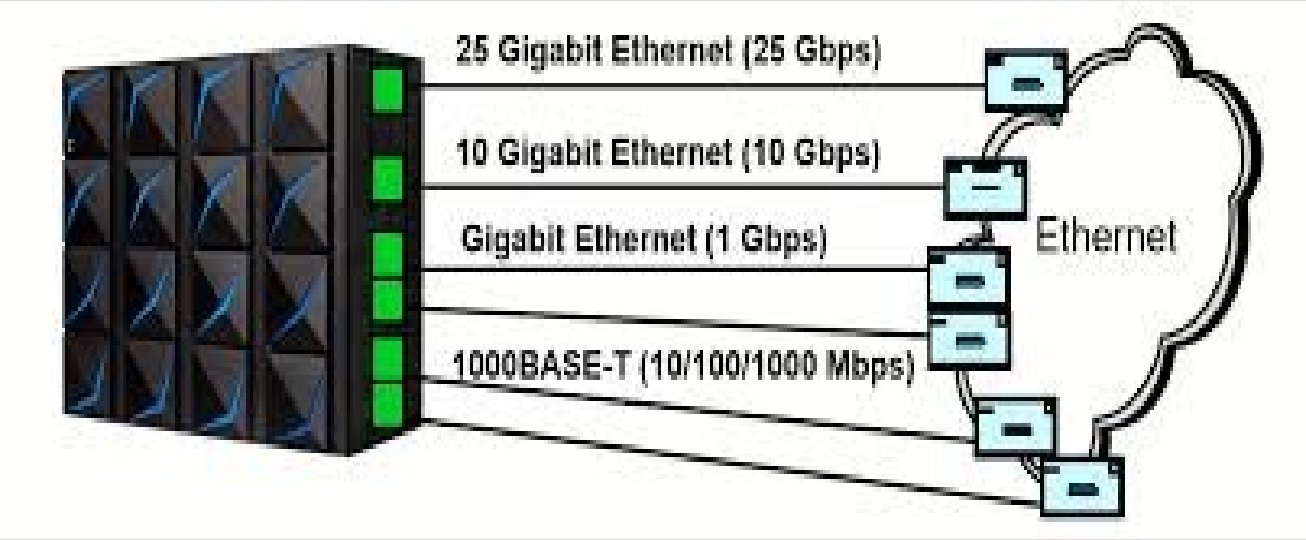
```
HOME ADDRESS LIST:
ADDRESS          LINK
204.90.115.184   OSDL
```

Open Systems Adapter (OSA)

OSA-Express2 and OSA-Express comprise several integrated hardware features which can be installed in IBM Z input/output (I/O) cage, becoming integral components of the server’s I/O subsystems.



OSA Connectivity

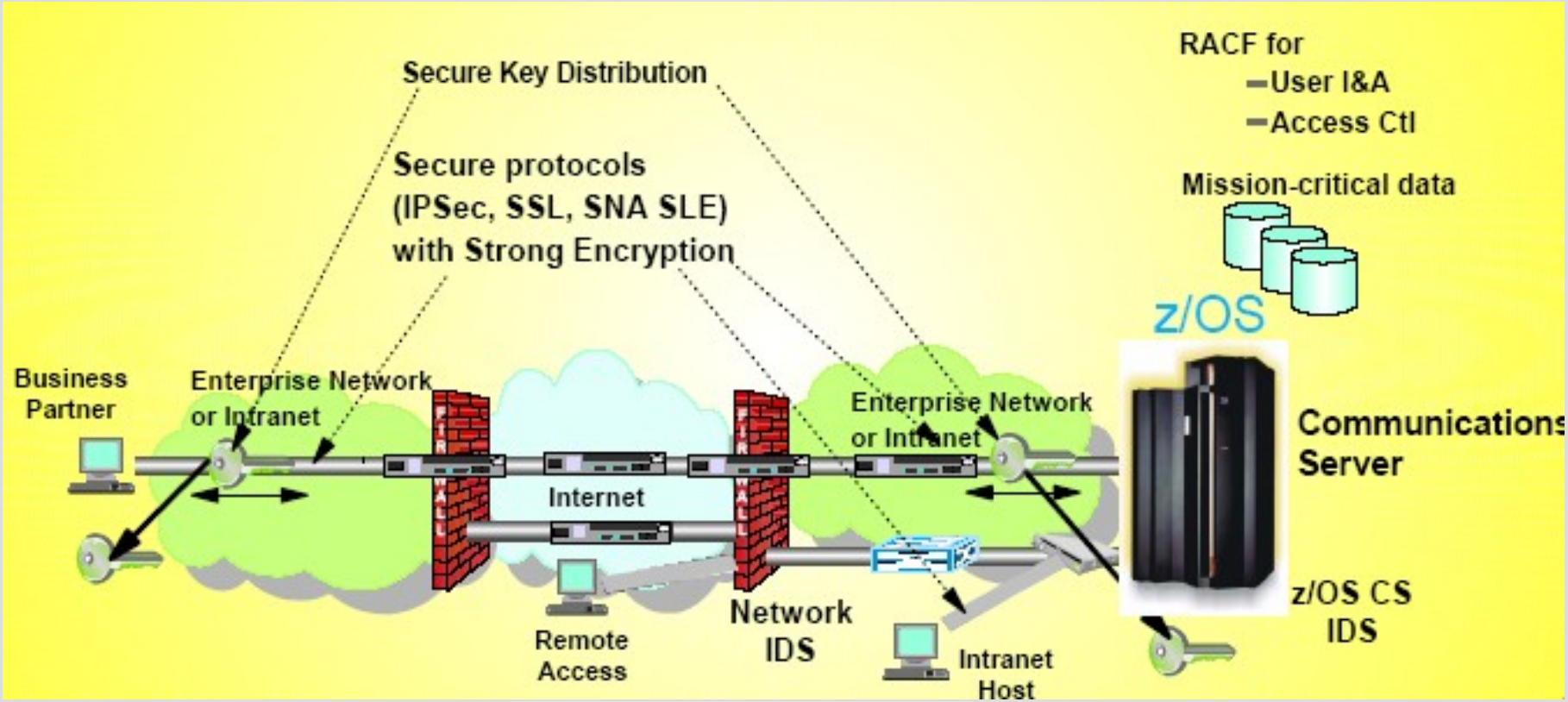


HiperSockets & VSwitch

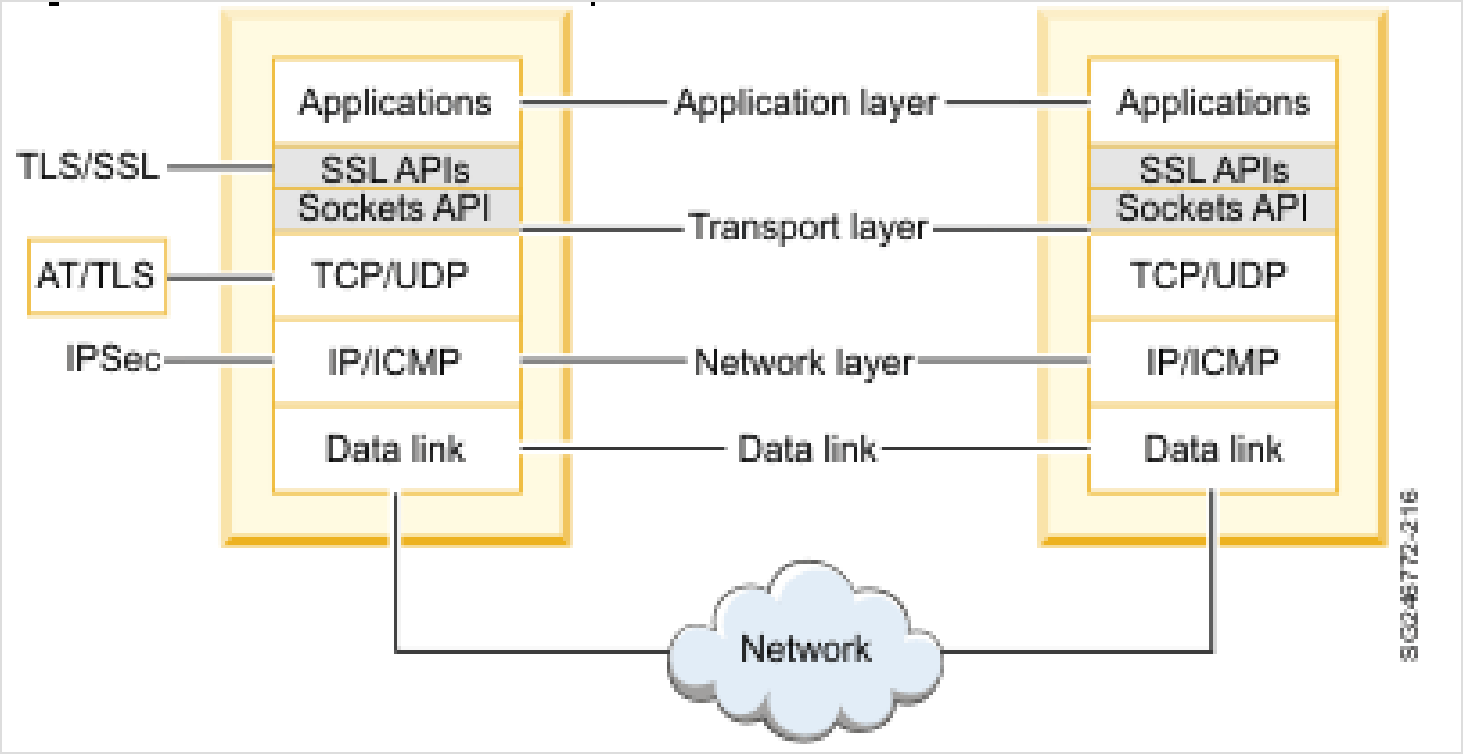
IBM Z provides high-speed TCP/IP connectivity between operating systems within an IBM Z eliminating need for any physical cabling or external networking connection between these virtual servers.

The network delay between operating systems is near zero.

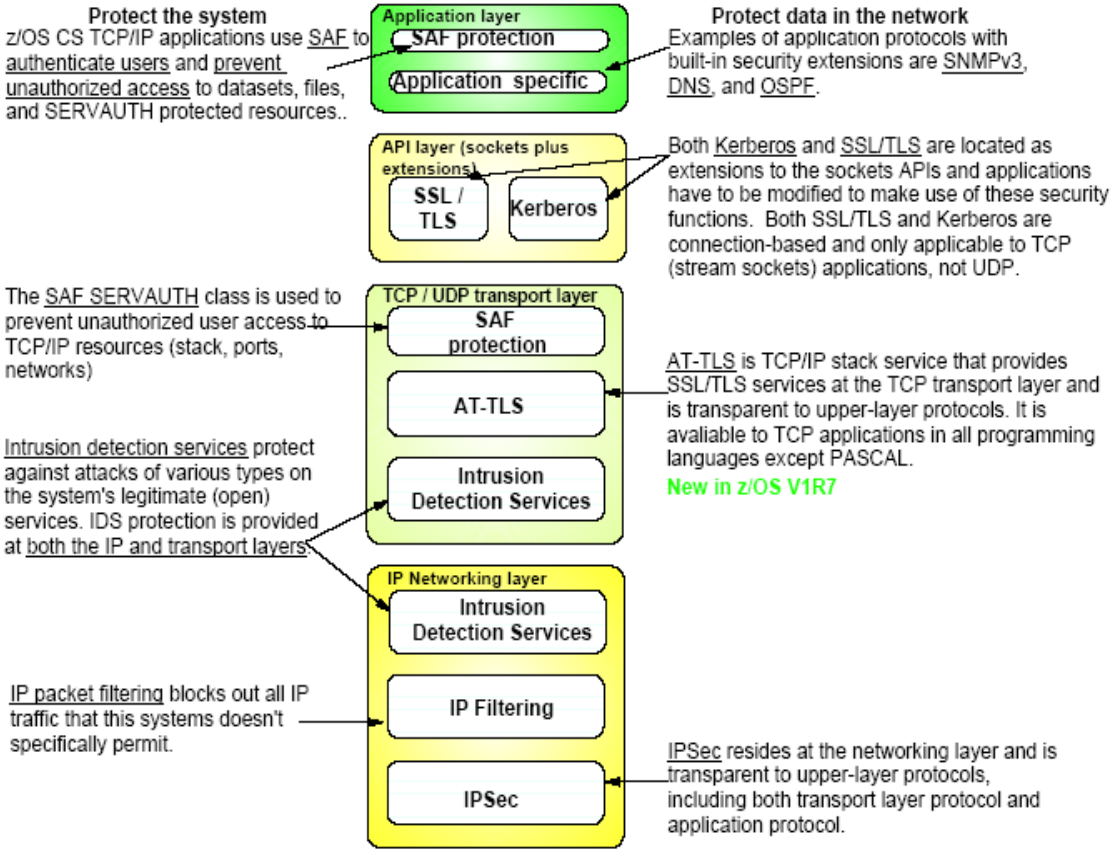
Security


Secure Key Distribution
Secure protocols
(IPSec, SSL, SNA SLE)
with Strong Encryption
RACF for
User I&A
Access Ctl
Mission-critical data
z/OS
Business Partner
Enterprise Network or Intranet
Internet
Enterprise Network or Intranet
Communications Server
Remote Access
Network IDS
Intranet Host
z/OS CS IDS

Communications Server Security Capabilities



Protocol Stack View of TCP/IP Security Functions



Professional Manuals and Information

+ z/OS Communications Server

Unit summary

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