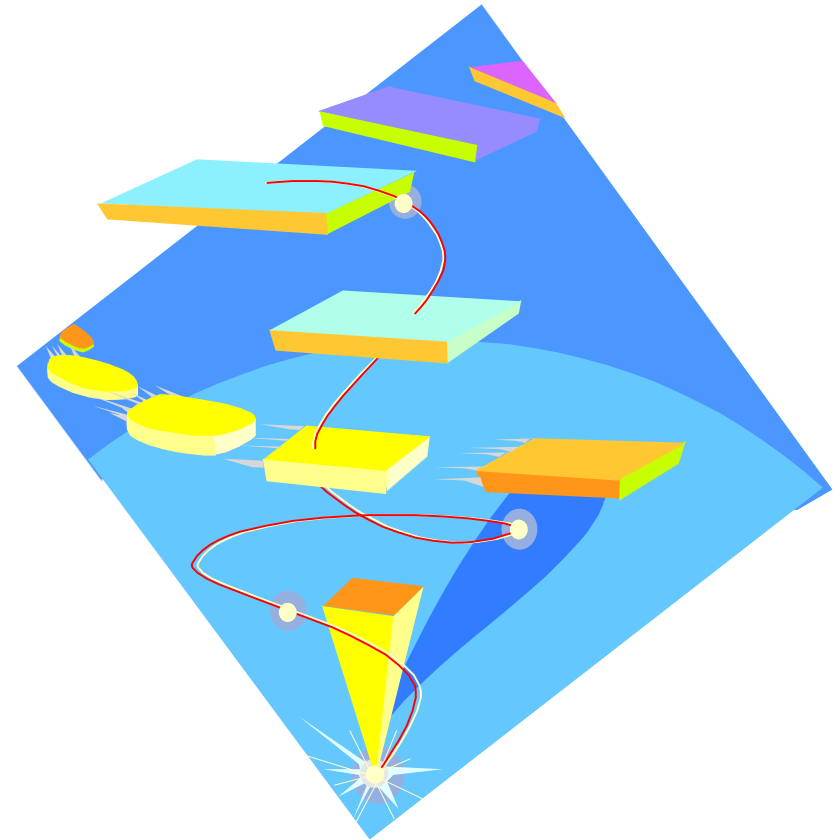# IBM eNetwork Communications Servers for S/390

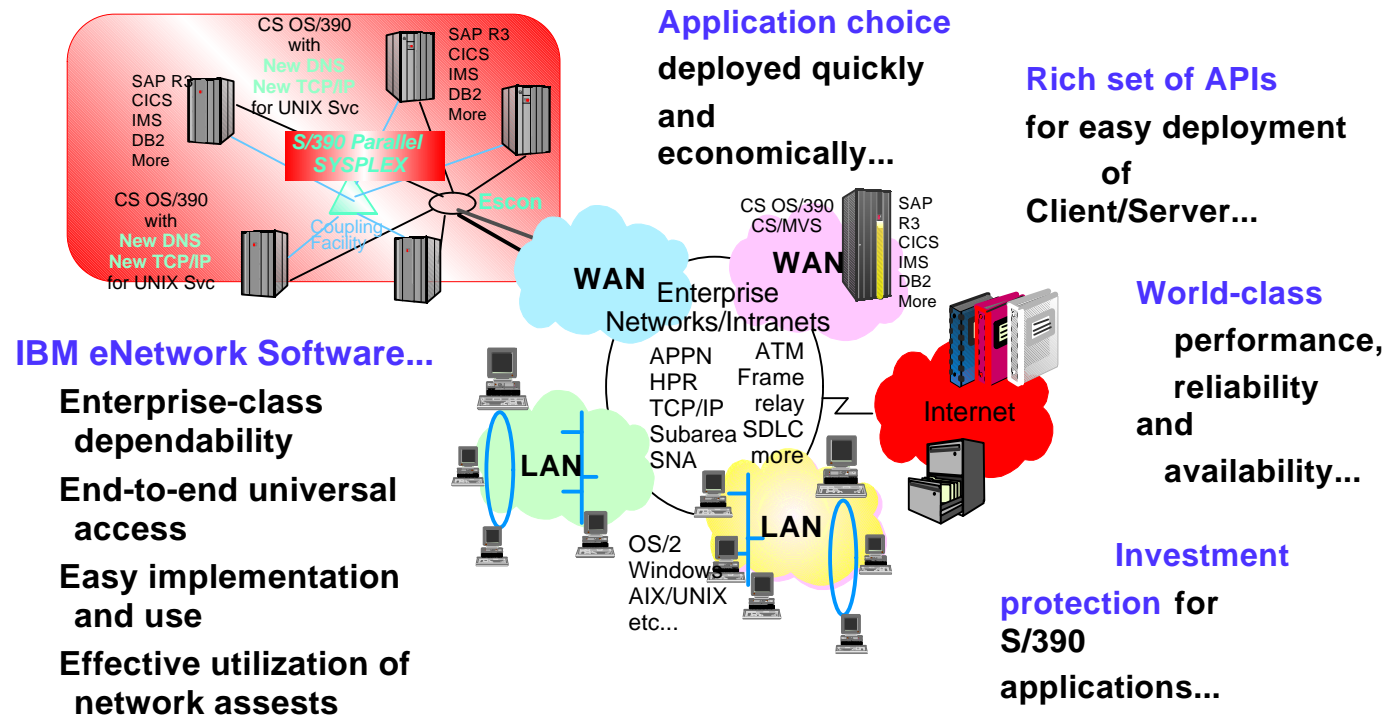## Enterprise-Class Solutions for e-Business

Communications Servers for S/390...

- ◆ **What are they ?**

- ◆ **Features and Benefits**

- ◆ **Directions**

Overview of eNetwork Communications Servers for S/390

Enterprise Network Computing Over LANs, WANs, Intranets and Internet...

Application choice

deployed quickly and economically...

Rich set of APIs

for easy deployment of Client/Server...

IBM eNetwork Software...

Enterprise-class dependability

End-to-end universal access

Easy implementation and use

Effective utilization of network assets

World-class

performance,
reliability and
availability...

Investment protection for S/390 applications...

A Powerful Communications Gateway Connecting Diverse Applications and Networking Environments

jdm cs390graphiz 8/12/97 *IBM Software*

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Networking for S/390

Enterprise-Class Dependability

 ◆ **High <u>Availability</u>**

 ◆ **High Capacity <u>Performance</u>**

 − TCP/IP Network Supports over 25,000 telnet sessions

 − SNA Network Supports tens of thousands sessions

 ◆ **Controlled Access <u>Security</u>**

 ◆ **Wide Range of <u>Scalability</u>**

 − From few to tens of thousands

 − Granular growth with parallel sysplex

 ◆ **<u>Predictable</u> Response Times**

 ◆ **Rock Solid <u>Reliability</u>**

IBM Software

High Availability

NEW!

- ◆ **Domain Name Server Exploits S/390 Workload Manager** *
  - – Allows TCP/IP sessions independant of a specific system in an OS/390 sysplex
  - – Allows workload balancing with an OS/390 sysplex

- ◆ **Virtual IP Addressing**
  - – TCP/IP Connections Independant of Hardware Attachments
    - ‣ Automatic and transparent recovery from network failures

- ◆ **Multinode Persistent Session**
  - – Recovery from application outages transparent to end users
    - ‣ Host connected through S/390 coupling facility
    - ‣ Avoid workload and network traffic to reestablish sessions

NEW!

- ◆ **Routing Internet Protocol (RIP)V2**

  - – More efficient routing around network failures and reduced network maintenance

- ◆ **High Performance Routing(HPR)**
  - – Network failure recovery transparent to user

NEW!

  - – HPR supports OSA-2, 2216, 3746 MAE and 3172*
    - ‣ Extends HPR high availability to LAN attached devices

- ◆ **Generic Resource capability extended to TSO/E sysplex users *

* Unique capabilities for OS/390

IBM Software

High Capacity Performance

NEW!

- ◆ **High Performance TCP/IP Stack ***
  - – Supports UNIX System Services applications
  - – Exploits OS/390 multiprocessing capabilities for near 1:1 scalability
  - – Web serving performance improves near 4 times the connections per second

- ◆ **Virtual IP Addressing**
  - – Enables split workloads across controllers for better performance.

- ◆ **High Performance Routing(HPR)**
  - – Intelligent congestion control and high link utilization

NEW!
  - – High throughput and performance extended to LAN attachment devices (XCA)

- ◆ **High Performance Data Transfer(HPDT) & Mutipath Channel (MPC)**

NEW!
  - – HPDT MPC (MPC+) improves performance for applications transferring large data objects
  - – HPDT MPC benefits are now extended to....
    - ‣ User Datagram Protocol (UDP), inceasing SAP R/3 to DB2 performance over TCP/IP*
    - ‣ Record API(RAPI), increasing performance for applications such as CICS and IMS

NEW!
    - ‣ IP to IP connections, increasing performance for IP traffic across HPDT MPC capable devices

NEW!

- ◆ **Routing Internet Protocol V2**
  - – More efficient use of IP addresses improving performance

- ◆ **CICS Sockets Interface**
  - – Reduced pathlength associated with tasking mechanism
  - – Capability for multiple and user customizable listeners
  - – Cache for Internet name-to-address resolution

IBM Software

Controlled Access Security

NEW! ◆ **RIP V2 provides packet authentication**
- Authentication is password controlled
- Passwords can be up to 16 octets long
- Unauthorized RIP V2 messages are discarded

NEW! ◆ **Improved VTAM Cryptographic support**
- Supports message authentication code (MAC)
- Transaction Security System (TSS) supports broader range of products

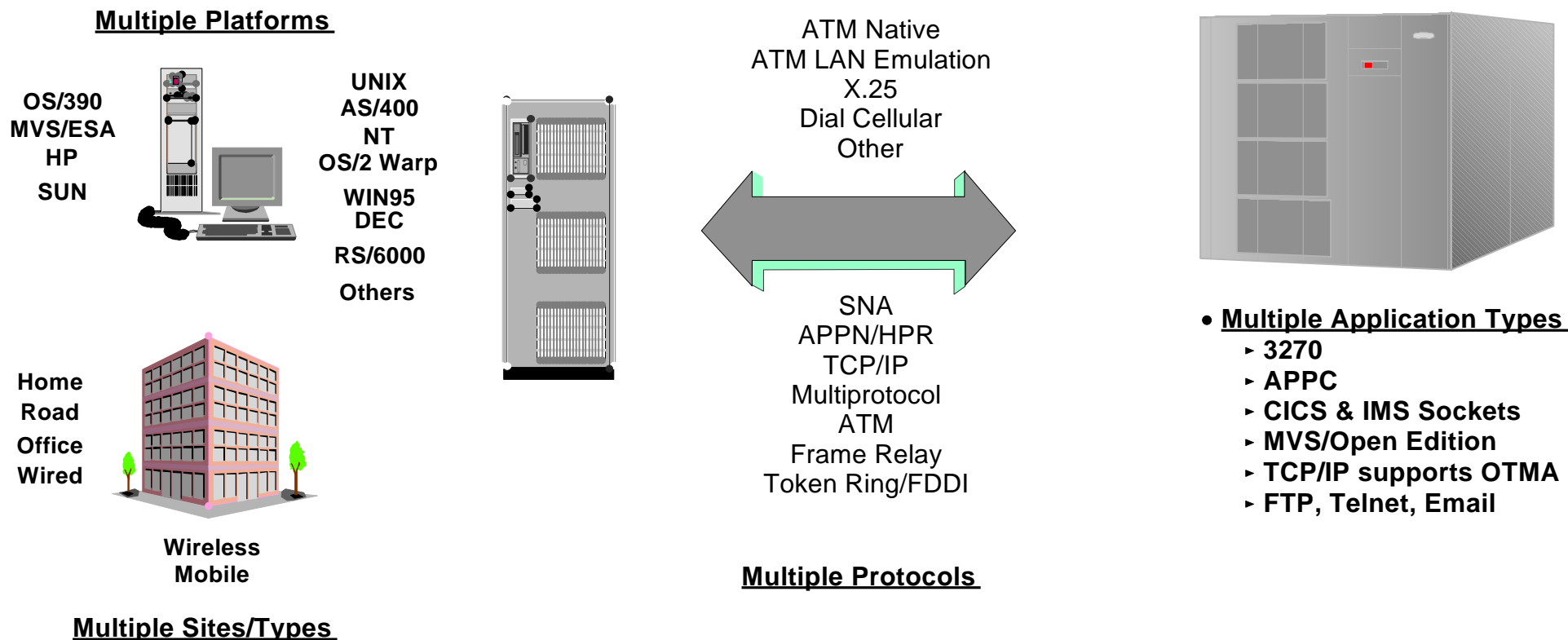**NEW!** ◆ **Improved IMS security through OTMA support**
- Easier extension of OTMA security enhancements to IMS transactions used by TCP/IP clients

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eNetwork Communications Servers for S/390

Universal, Any to Any Access

Multiple Platforms

OS/390
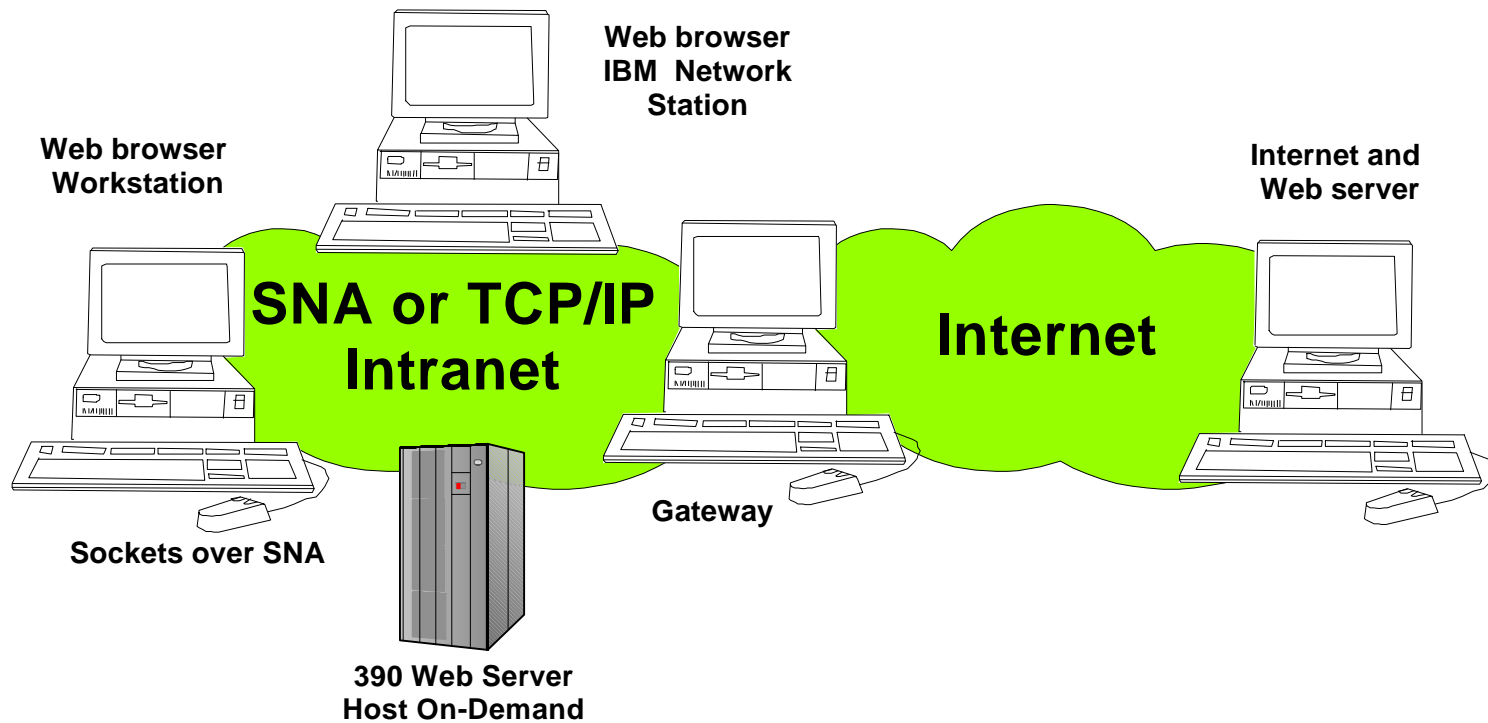MVS/ESA
HP
SUN

UNIX
AS/400
NT
OS/2 Warp
WIN95
DEC
RS/6000
Others

Home
Road
Office
Wired

Wireless
Mobile

Multiple Sites/Types

Multiple Network Technologies

ATM Native
ATM LAN Emulation
X.25
Dial Cellular
Other

SNA
APPN/HPR
TCP/IP
Multiprotocol
ATM
Frame Relay
Token Ring/FDDI

Multiple Protocols

- **Multiple Application Types**
  - ‣ **3270**
  - ‣ **APPC**
  - ‣ **CICS & IMS Sockets**
  - ‣ **MVS/Open Edition**
  - ‣ **TCP/IP supports OTMA**
  - ‣ **FTP, Telnet, Email**

Network Computing for e-business

Intranet/ Internet Access From Anywhere

**Web browser
IBM Network
Station**

**Web browser
Workstation**

**Internet and
Web server**

**SNA or TCP/IP
Intranet**

Internet

Gateway

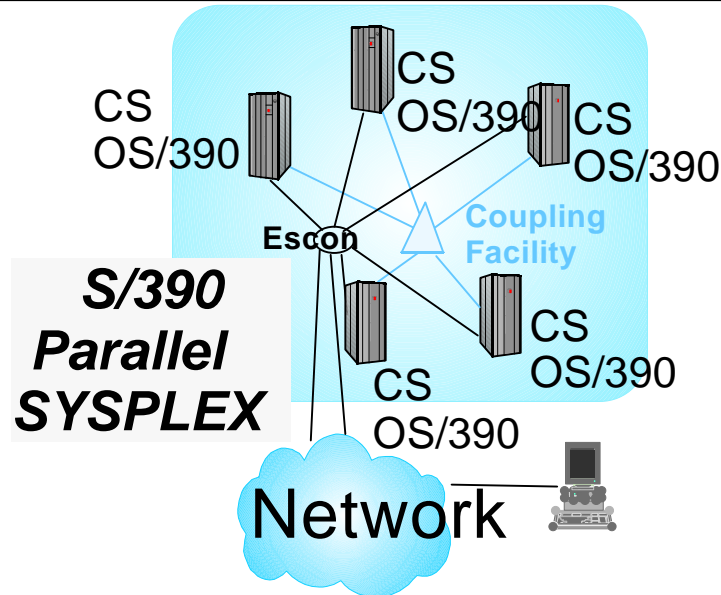**Sockets over SNA**

**390 Web Server
Host On-Demand**

NEW!

- ◆ **End-users access Internet/intranet via web browsers while staying connected to their native networks**
  - – Host On-Demand for Java-enabled Web browser access to S/390 3270 applications

NEW!

- ◆ **Internet users access Web server in the enterprise network**
  - – Support for IBM Network Station network computer

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Summary of Unique Benefits for OS/390

S/390 Parallel SYSPLEX

CS OS/390

CS OS/390

CS OS/390

Escon

Coupling Facility

CS OS/390

CS OS/390

Network

- **Single system image**
- **Workload balancing**
- **Scalability/horizontal growth**
- **High availabiilty**

NEW!
- **New TCP/IP Stack Supporting UNIX System Services applications**
  - Significant performance improvements for Web serving

NEW!
- **Domain Name Server Exploits S/390 Workload Manager**
  - Provides workload balancing and higher availability

NEW!
- **HPDT Benefits Extended to UDP**
  - Improves performance for SAP R/3 to DB2 communications

NEW!
- **IP to IP Communications Through XCF**
  - IP and HPR traffic can use the same channels in sysplex environment

- **TSO/E Generic Resource**
  - High availability for mission critical data and applications

- **TSO/E session balancing across sysplex**
  - Enhanced usability for end users of parallel sysplex servers

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Considering Platform Alternatives?
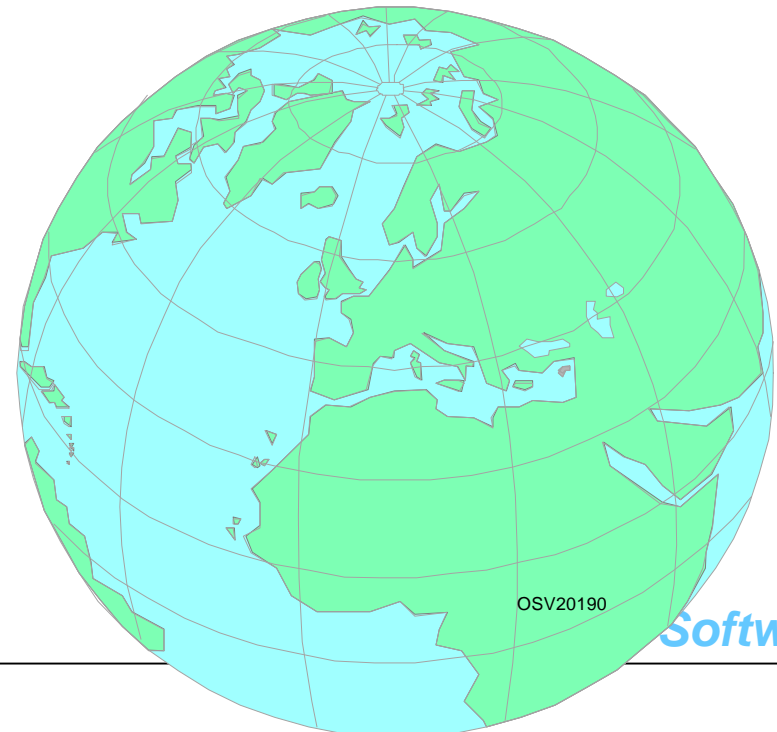
eNetwork Communications Server and OS/390 V2

- **Secure business**
- **Global market**
- **Leverage your infrastructure**
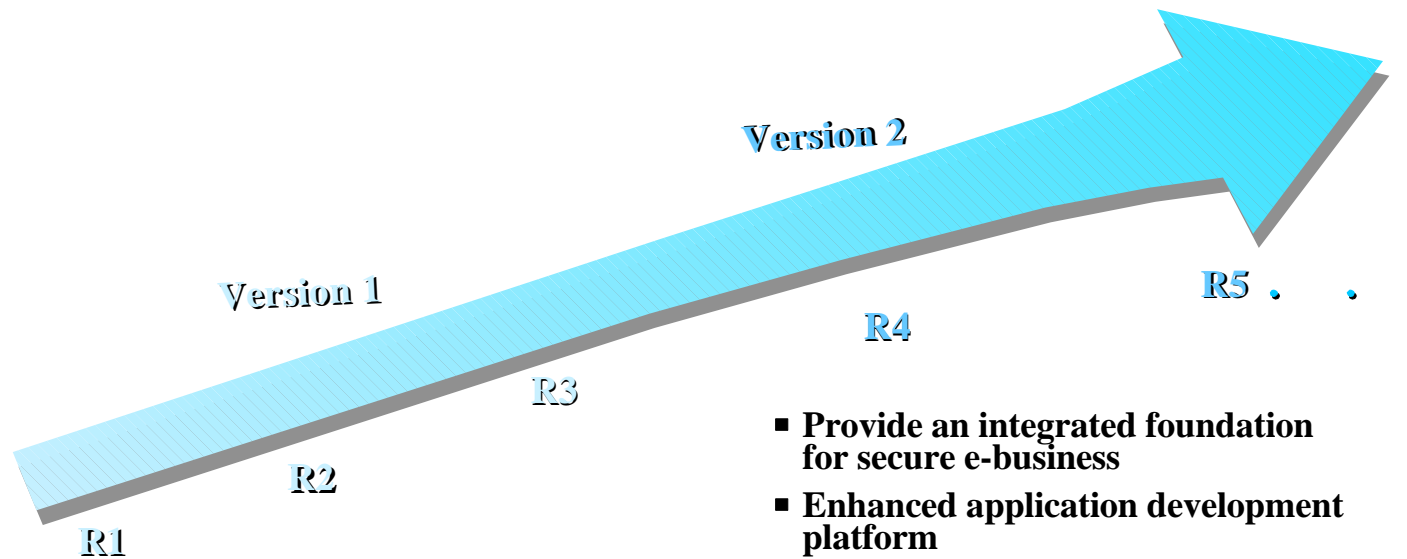- **Investment protection**
- **Reliability**

Powered by S/390

OSV20190

Software

OS/390 Transformation Continues

Version 2

Version 1

R5 . .

R4

R3

R2

R1

- Transformed MVS into a leading edge open server operating system
- Reduced overall complexity through integration of existing products
- Reduced the total cost of computing
- Delivered enhanced application enablement
- Extended the classic strengths of S/390 software

- **Provide an integrated foundation for secure e-business**
- **Enhanced application development platform**
- **Move Server Integration to realization**
- **Provide the foundation and technology leadership for entry into additional environments**
- **Extend OS/390 platform strengths with continued enhancements**
- **Provide faster and easier exploitation of the industry's newest software technologies**

OSV20030

OS/390 Version 2 is ...

Secure network computing-ready, enabled for e-business, Year 2000 ready, application enablement platform:

- **Networking (Java/Lotus Domino) applications**
- **S/390 applications**
- **UNIX applications**
- **Vendor applications**
- **Ported NT applications**

Operating system supporting technological advances:

- **Network server capability**
- **Parallel processing**
- **Object Oriented programming**

Open Server which complies with industry standards:

- **X/Open (UNIX)**
- **Open Software Foundation (OSF)**
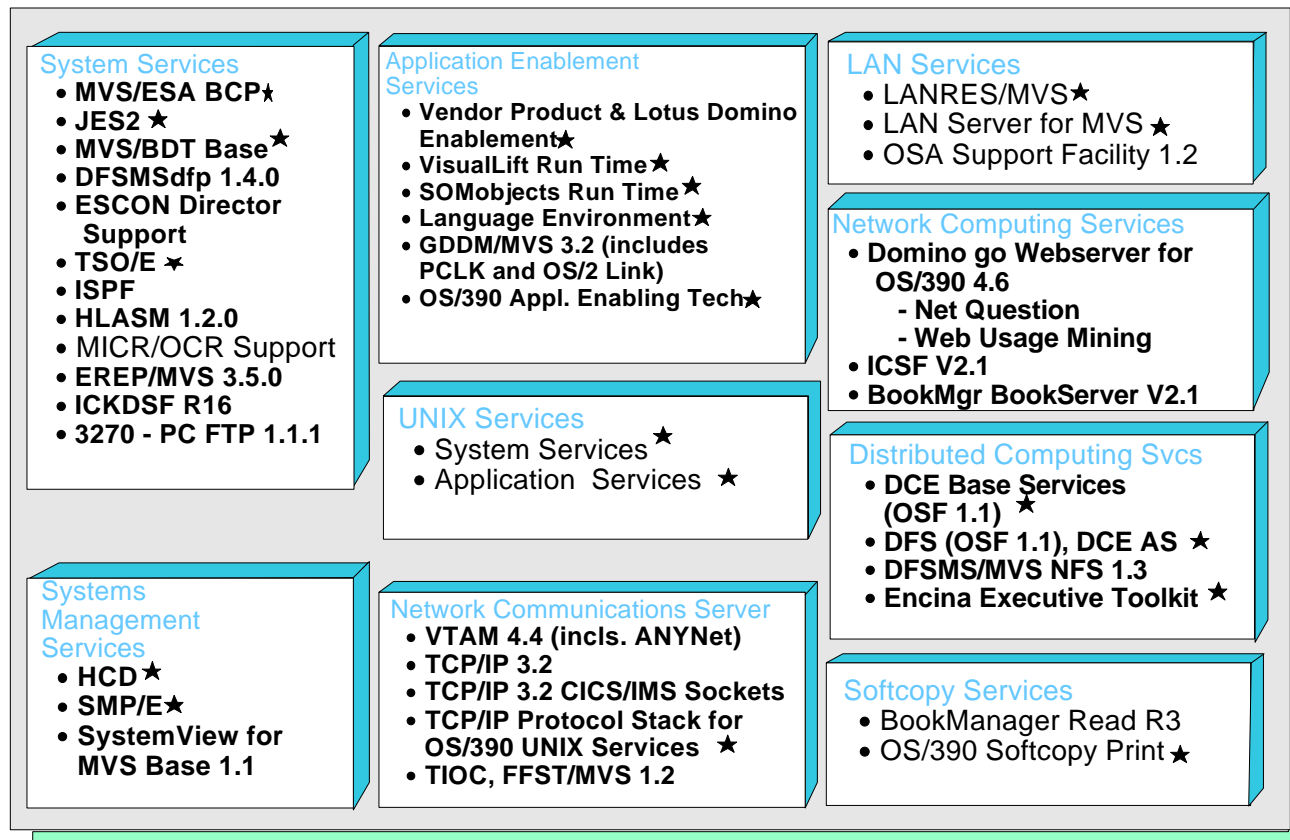- **Common Object Request Broker Architecture (CORBA)**

Configured, integrated and tested collection of products, functions and features
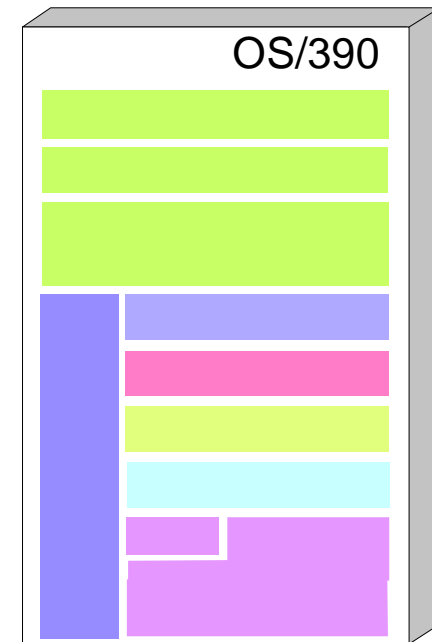
OS/390

OSV20040

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OS/390 V2R4 Base Elements Summary

System Services
- **MVS/ESA BCP** ★
- **JES2** ★
- **MVS/BDT Base** ★
- **DFSMSdfp 1.4.0**
- **ESCON Director Support**
- **TSO/E** ✹
- **ISPF**
- **HLASM 1.2.0**
- MICR/OCR Support
- EREP/MVS 3.5.0
- ICKDSF R16
- 3270 - PC FTP 1.1.1

Application Enablement Services
- **Vendor Product & Lotus Domino Enablement** ★
- **VisualLift Run Time** ★
- **SOMobjects Run Time** ★
- **Language Environment** ★
- **GDDM/MVS 3.2 (includes PCLK and OS/2 Link)**
- **OS/390 Appl. Enabling Tech** ★

UNIX Services
- System Services ★
- Application Services ★

Systems Management Services
- **HCD** ★
- **SMP/E** ★
- **SystemView for MVS Base 1.1**

Network Communications Server
- **VTAM 4.4 (incls. ANYNet)**
- **TCP/IP 3.2**
- **TCP/IP 3.2 CICS/IMS Sockets**
- **TCP/IP Protocol Stack for OS/390 UNIX Services** ★
- **TIOC, FFST/MVS 1.2**

LAN Services
- LANRES/MVS ★
- LAN Server for MVS ★
- OSA Support Facility 1.2

Network Computing Services
- **Domino go Webserver for OS/390 4.6**
    - **Net Question**
    - **Web Usage Mining**
- **ICSF V2.1**
- **BookMgr BookServer V2.1**

Distributed Computing Svcs
- **DCE Base Services (OSF 1.1)** ★
- **DFS (OSF 1.1), DCE AS** ★
- **DFSMS/MVS NFS 1.3**
- **Encina Executive Toolkit** ★

Softcopy Services
- BookManager Read R3
- OS/390 Softcopy Print ★

★ **OS/390 Exclusive Enhancements**

TLLB2690

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- **TCP/IP for OS/390 UNIX System Services Extended set of applications**
  - High performance
  - High RAS
  - Sockets supported:
    - UNIX Services
    - C
    - Rexx
    - Macro
    - CALL
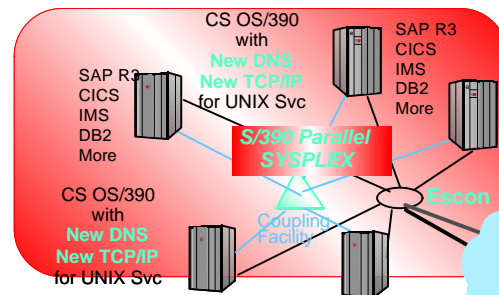   - X/Open Transport
    - Pascal

- **New Telnet Server**
  - TN3270E
  - Dynamic configuration update
  - Improved performance
  - Connection load balancing

- **Full Dynamic IP for Network Station & Other Clients**
  - Enables DHCP cooperation with DNS
  - dynamically & directly registers name & address mappings to DNS
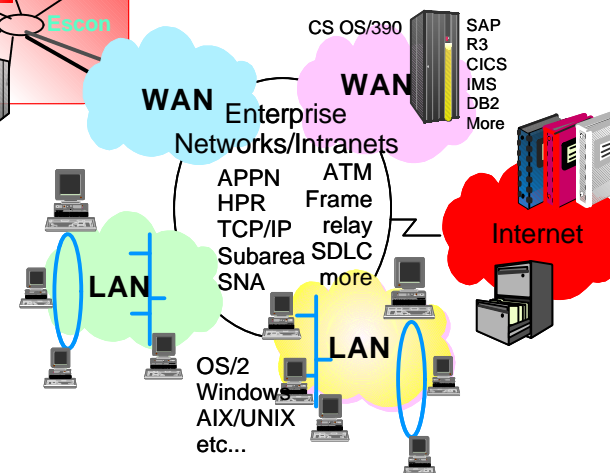 - Reduces administrative overhead

- **Additional Services Exploiting DNS Workload Balancing in Sysplex**
  - Newly extended TCP/IP stack
  - New TN3270E server
  - FTP server
  - IMS/CICS sockets

CS OS/390 with New DNS New TCP/IP for UNIX Svc

SAP R3 CICS IMS DB2 More

SAP R3 CICS IMS DB2 More

S/390 Parallel SYSPLEX

CS OS/390 with New DNS New TCP/IP for UNIX Svc

Coupling Facility

Escon

- **Additional Enhancements to CS OS/390**
  - Improved SNMP network management
  - New C-FTP client on S/390
  - Improved NLS for FTP & Telnet

CS OS/390

SAP R3 CICS IMS DB2 More

WAN

Enterprise Networks/Intranets

APPN
HPR
TCP/IP
Subarea
SNA

ATM
Frame relay
SDLC
more

WAN

Internet

LAN

LAN

OS/2
Windows
AIX/UNIX
etc...

- **SourceVIPA for Improved Fault Tolerance**
  - allows user transparent accommodation of TCP/IP connection failures for BOTH inbound and outbound TCP/IP traffic

- **Security Functions for Internet & Intranet**
  - IP Packet filtering for controlled access
  - IPSec for secure pathway across the Inter/ intranet
  - Network address translation to hide internal IP addr
  - SNMPv2u security for authentication by MD5

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AnyNet	OS/2 WARP
APL2*	OS/390
APPN*	PR/SM
AS/400*	PSF
Application Development	PS/2*
BookManager*	QMF
CICS	RACF
CICS/ESA*	RS/6000
CUA	SMP/E
DB2*	System Object Model
DFSMS	390
DFSMS/MVS*	
DFSMSdfp	
DFSMSdss	
DFSMShsm	
DFSMSrmm	
ESCON*	
ES/9000*	
GDDM*	
geoManager*	
Hardware Configuration Definition	
Hiperbatch	
Hiperspace	
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Language Environment*	
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