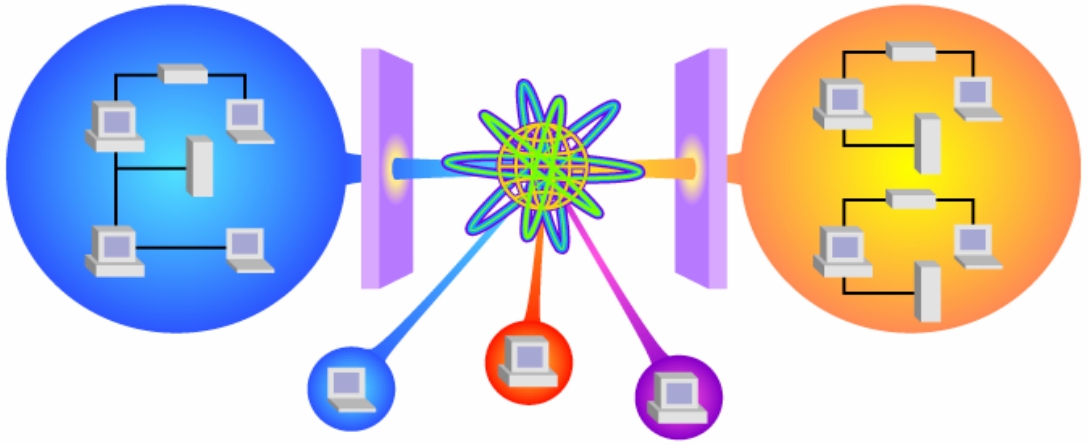
hp e3000

internet security



internet security on your hp e3000

HPWorld 2000 session

OnOn Hong
onon_hong@hp.com

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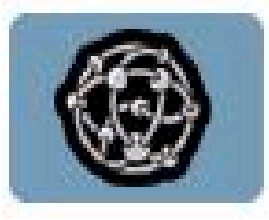
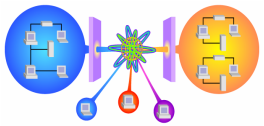
internet security





With the advent of the Internet and the creation and rapid success of e-business, security has never been more important

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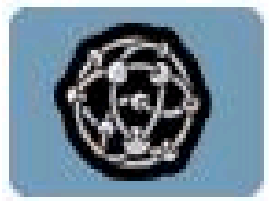
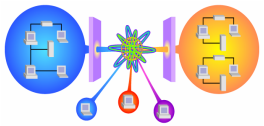
internet security



hp e3000 internet and interoperability roadmap



Business Value & Benefit

Investment protection; reduce costs; increase productivity

Modernize legacy applications

New business opportunities

Stimulate the growth of the Internet and e-solutions

Capitalize on and expand Internet business

Anticipate and fulfil emerging needs for ISVs and enterprise customers

Shape the e-services world

Become a key player in the e-services world

Leads to…

vision

HP e3000 customers and their businesses are successfully using and seamlessly integrating with the Internet/Intranet and the e-services world

2000 **HP-UX, MPE/iX, NT, Linux and beyond** 2001+

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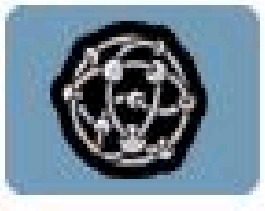
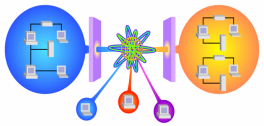
internet security



Internet security vision



HP e3000 customers and their businesses are successfully using and seamlessly integrating the Internet and the e-services world...

SECURELY, PRIVATELY (IF DESIRED), AND WITH TRUST.

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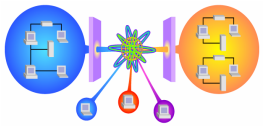
internet security

common internet security risks



- System Access
  - **Unauthorized access**
  - **Denial of service**
- Network communication
  - **Eavesdropping**
  - **Tampering**
  - **Impersonation**
  - **Repudiation**

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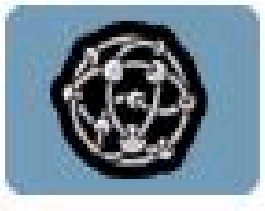
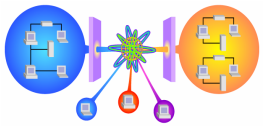


internet security key objectives



- Provide robust host security and ensure system integrity while connected to the Internet

- Provide the ability to guarantee the privacy and integrity of data exchanged over the Internet

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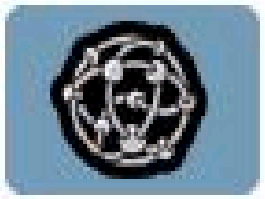
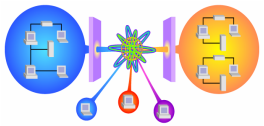
internet security



internet security strategy



Focus on KEY Internet security areas

- Leverage existing security products and services (firewalls, VPN gateways) running on UNIX and NT
- Provide robust system security
- Embrace key Internet building blocks
- Provide key security Internet services
- Strong partnership with ISV to provide additional Internet security products and solutions
- Continue research and evolve

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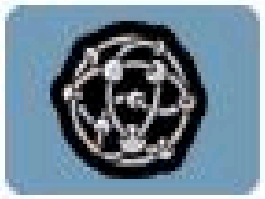
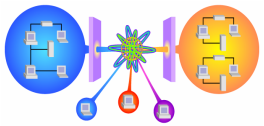
internet security



hp e3000 internet security in general



- Access control

  Protect internet connected systems against unwanted access

  - **Perimeter defense**
  - **System host security**

- Secure communication

  Ensure privacy and integrity of data transmitted over the network and protect against eavesdropping, tampering and forgery

  - **RSA BSAFE SSL-C toolkit**
  - **HP WebWise MPE/iX Secure Web Server**
  - **HP Secure Web Console**

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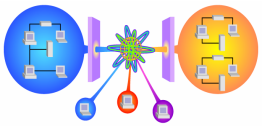
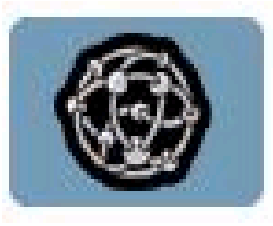
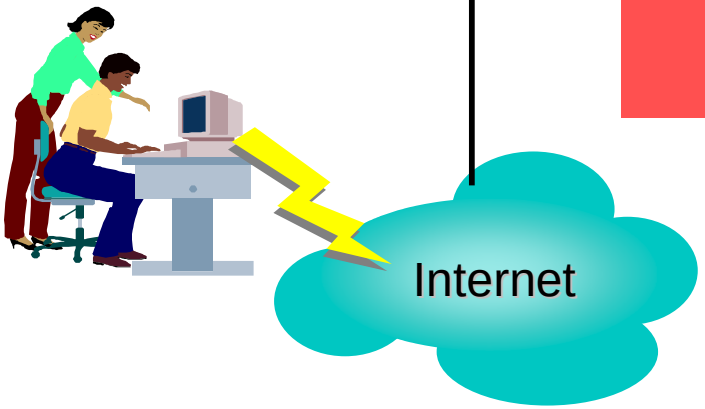
internet security

perimeter defense: firewalls



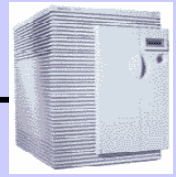




Firewall

Router

NT/Unix



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Private Network

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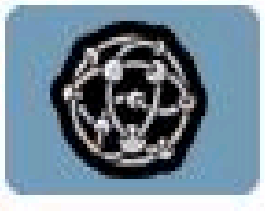
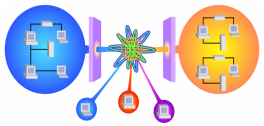
internet security



system host security



- Physical security
- Basic OS security measures
- 3rd party security products

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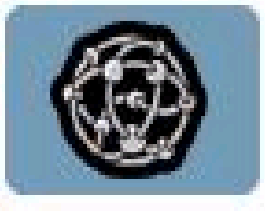
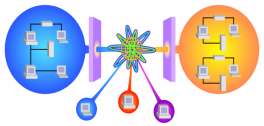
internet security



system host security
basic os security measures



- Logon
  - **unique logon ID, user.account + password**
  - **logon UDC**
- System access
  - **Account structure (accounts, groups, users, files)**
  - **User identity, user roles, capabilities (SM, AM, OP, PM, etc.) determine access level**
- File access
  - **File access mode, permissions, and lockwords**
  - **ACD (Access Control Definition)**

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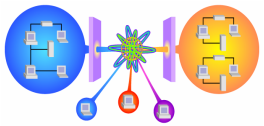
system host security
basic os security measures



- Logging facilities
  - **System logging**
  - **User logging**
- Internet services
  - **INETDCNF.NET.SYS or /etc/inetd.conf**
  - **INETDSEC.NET.SYS or /usr/adm/inetd.sec**
- HP security monitor

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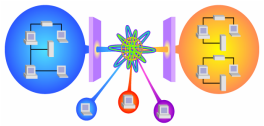
internet security

hp e3000 security partner products



- SAFE/3000
  - **Monterey Software**
  - **http://www.editcorp.com/business/montereysoftware**
- Security/3000 and Audit/3000
  - **VESOFT**
  - **http://www.vesoft.org**

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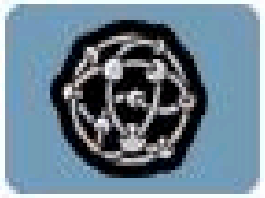
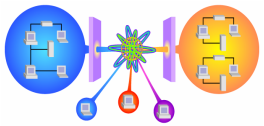


Secure Communication



- Data Privacy
  - **Ensure no one else has access to data**
- Data Integrity
  - **Prevent data tampering**
- Authentication
  - **Confirm the sender's and receiver's identity**
- Authorization
  - **Grant or deny access or services to a particular user**
- Non-repudiation
  - **Prevents the sender of information from denying at a later date that the information was ever sent**

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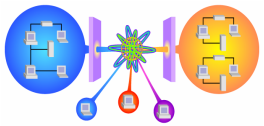
key internet building block secure sockets layer (SSL)



- An Internet protocol designed to provide secure communication between a client and a server via encryption, message digests, digital signatures, and certificate authentication

- De facto standard for securing data flowing across the Internet

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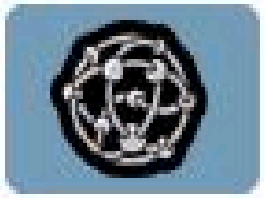
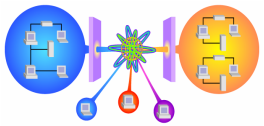
internet security



encryption



- Encryption is a process of scrambling data into an unintelligible form (cipher text) by applying a cryptographic algorithm
- Decryption converts the cipher back to its original form
- Require key(s) with the algorithm to produce an encrypted result or to decrypt previously encrypted
- The strength of the encryption is dependent on:
  - **the nature of the algorithm**
  - **the size of the keys (40 bits? 56 bits? 128 bits? 1024 bits?)**
- Address the problem of eavesdropping

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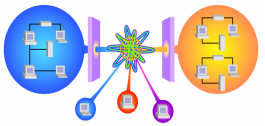
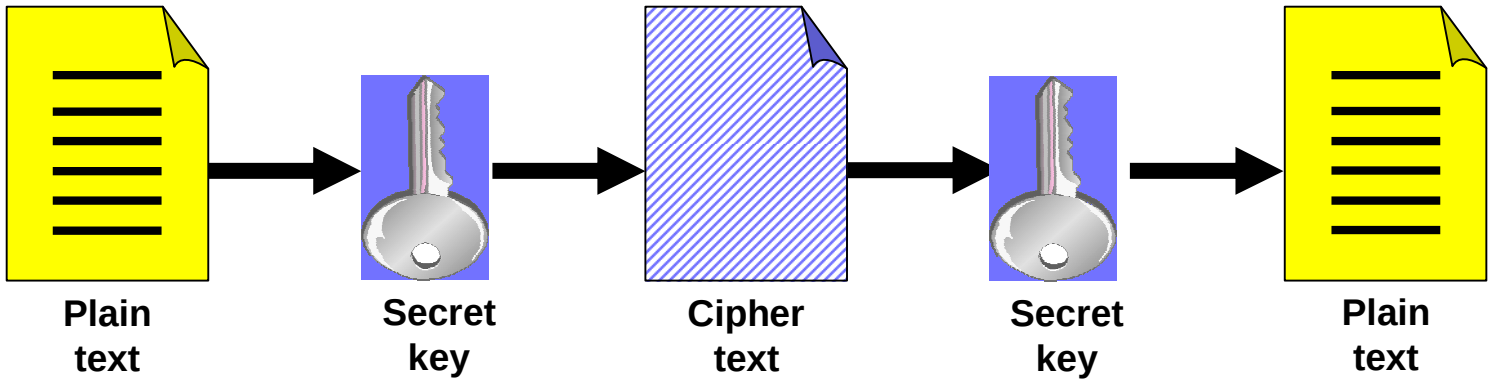
secret key cryptography



- A single key is used for both encryption and decryption
- The key is "shared" by the sender and receiver
- Common symmetric algorithms are RC4, DES and 3-DES



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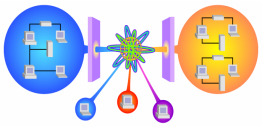
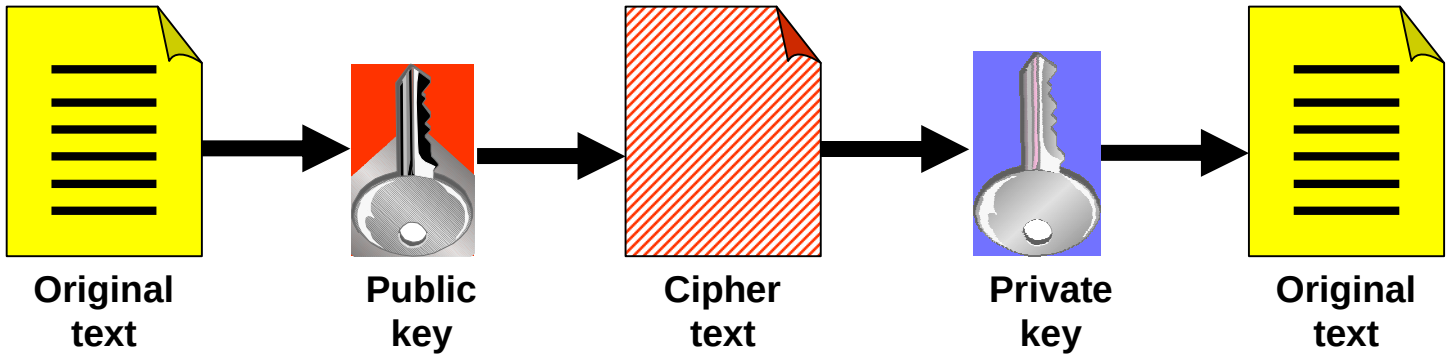
public key cryptography



- Two keys are used. The two keys provide inverse functions.
  - **Private - Known only to the owner of the key**
    - **create digital signatures**
    - **create digital certificates**
  - **Public - Exposed to the world**
    - **included in digital certificate**
- Most well known public/private key algorithm is RSA



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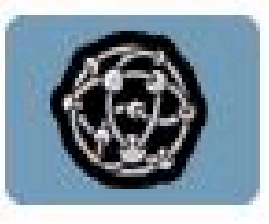
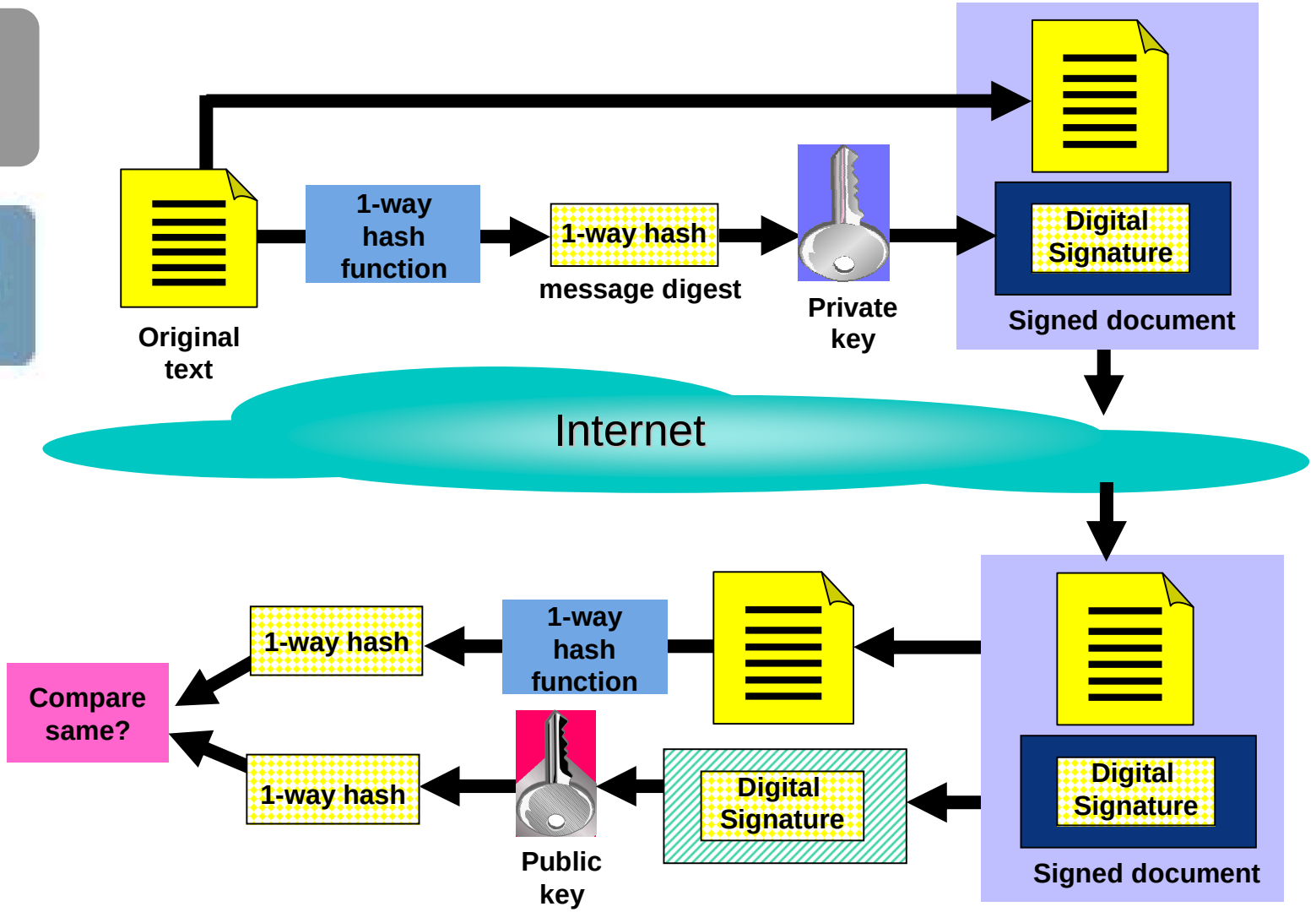
message digests and digital signatures





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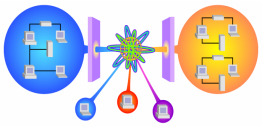
digital certificates



- A digital document created and signed by Certificate Authority
- Validates certificate holder's identity and the public key to others
- Format defined by X.509 standard

Certificate holder's identity (name, company & etc.)

Public key

Serial number

Expiration date

The identity and signature of a trusted Certificate Authority

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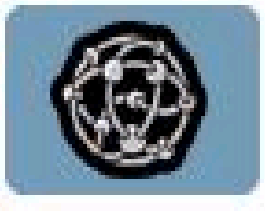
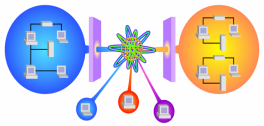


RSA BSAFE SSL-C toolkit overview



- What is it?
  - **A software development suite for building SSL-enabled applications, combined with full suite of RSA algorithms**
  - **Enable developers to easily embed SSL-based encryption capabilities into their applications**
- RSA BSAFE SSL-C v.1.0 key features
  - **SSL v2, v3, and TLS v1 compliance**
  - **128-bit encryption**
  - **X.509 authentication**
  - **Session caching**

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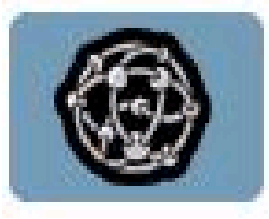
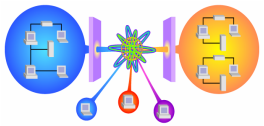


RSA BSAFE SSL-C toolkit continued...



- Includes
  - **SSL Library with C APIs**
  - **Sample programs and source code**
  - **Utility for key generation, certificate management**
- Availability
  - **HP distribution**
    - **Available for downloading from Jazz "free"**
    - **For development and testing purpose only**
    - **No support from HP**
    - **Requires user license from RSA for support and deploying applications that use BSAFE SSL-C toolkit**
  - **Contact RSA directly**

Kevin DeJong

RSA Data Security Inc. Strategic Alliances manager

(650)-295-7758

kdejong@rsasecurity.com

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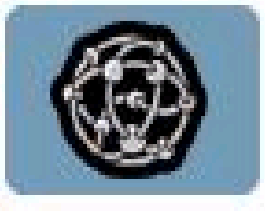
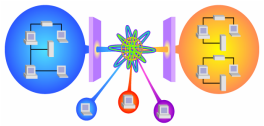


HP WebWise. Overview



- A new Internet suite of key offerings for e-business and web-enabling your HP e3000
- First suite component is the HP WebWise MPE/iX Secure Web Server based on open-source Apache
  - ***Orderable and shipping now and available for MPE/iX 6.0 OS or greater.***
  - ***On-line order, purchase, and download available in the near future from HP Software Depot***
  - ***Full HP support via the Response Center***
  - ***Price ranges from US $1295 to US $1995 based on system performance tiers***
- Future offerings may include services such as web-consulting/training and third party products for easy, quick and affordable development and deployment

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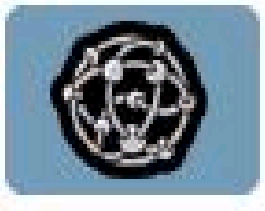
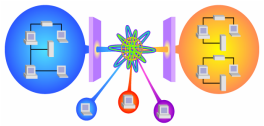
internet security



HP WebWise. secure web server key features & benefits



- Supports SSL and TLS
  - **Full-strength encryption**
  - **Client and server X.509 authentication**
  - **Allows customers to build internet applications with e-confidence!**
- Supports Dynamic Shared Objects (DSO)
  - **Apache modules dynamically loaded from external NMXLs**
  - **Allows customers to add-on extra functionality**
  - **Significant performance improvement over CGI**

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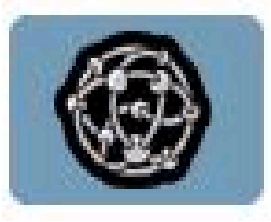

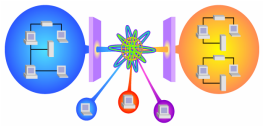

HP WebWise.
MPE/iX Secure Web Server Tutorial

Presented by Mark Bixby
Sept. 14 Thursday, 8:00am

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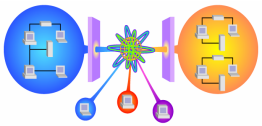
operating environment



Internet

HP WebWise Secure Web Server

Firewall

PC

HP 9000 Server

HP 3000 Database Server

HP WebWise Secure Web Server

NT Server

Other Server

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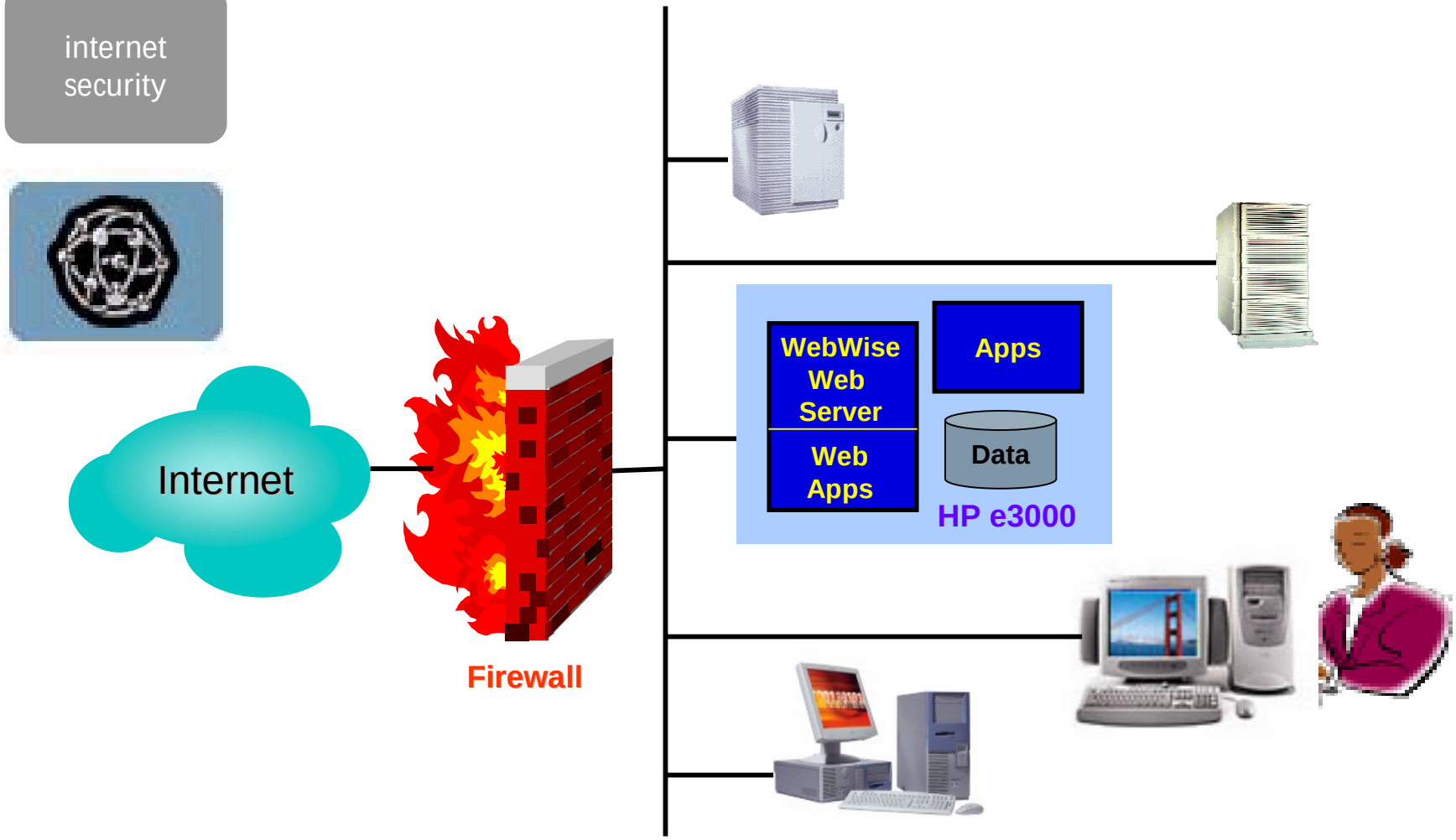
using WebWise. web server to access hp e3000 data #1



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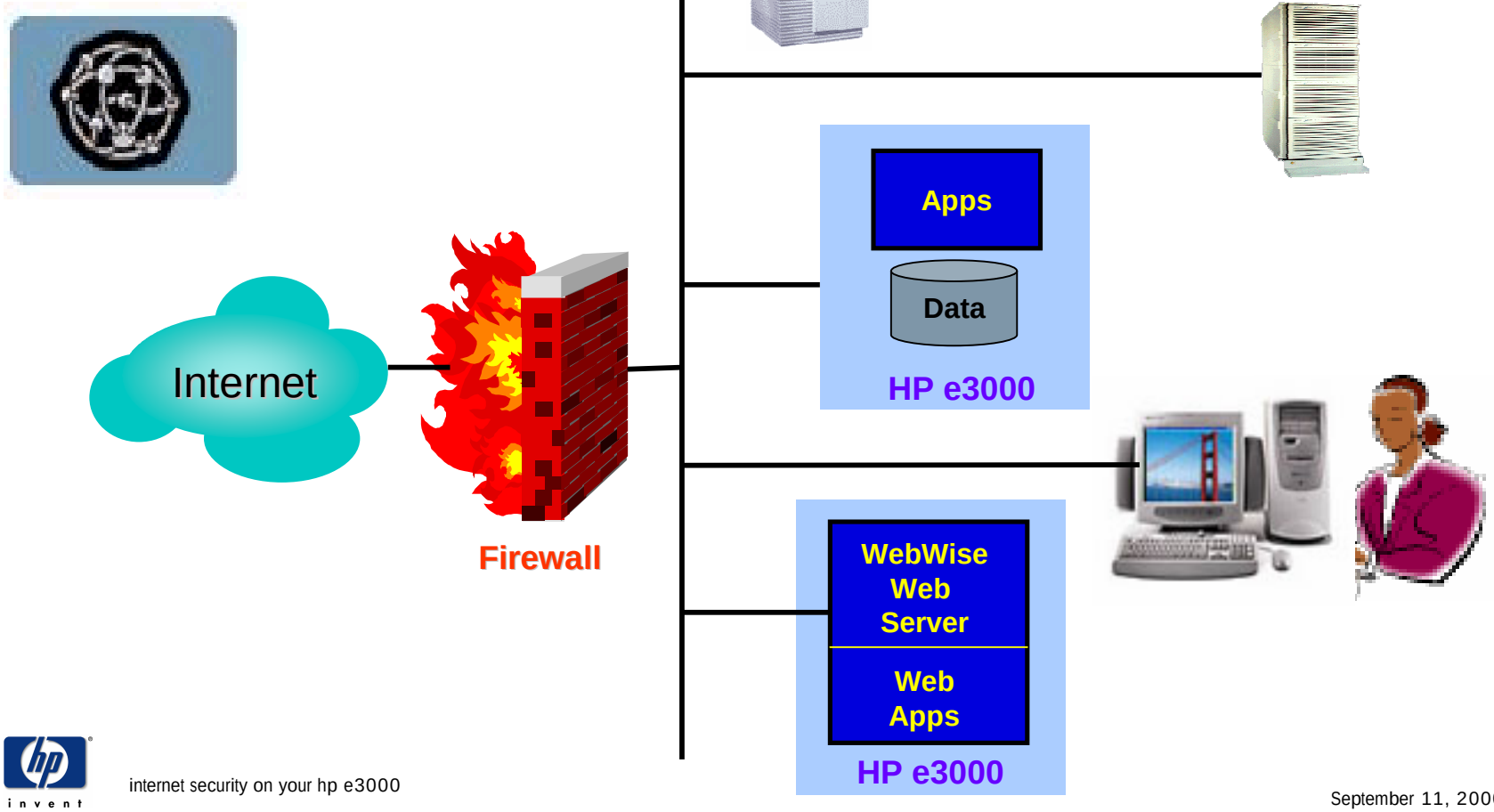
using WebWise. web server to access hp e3000 data #2



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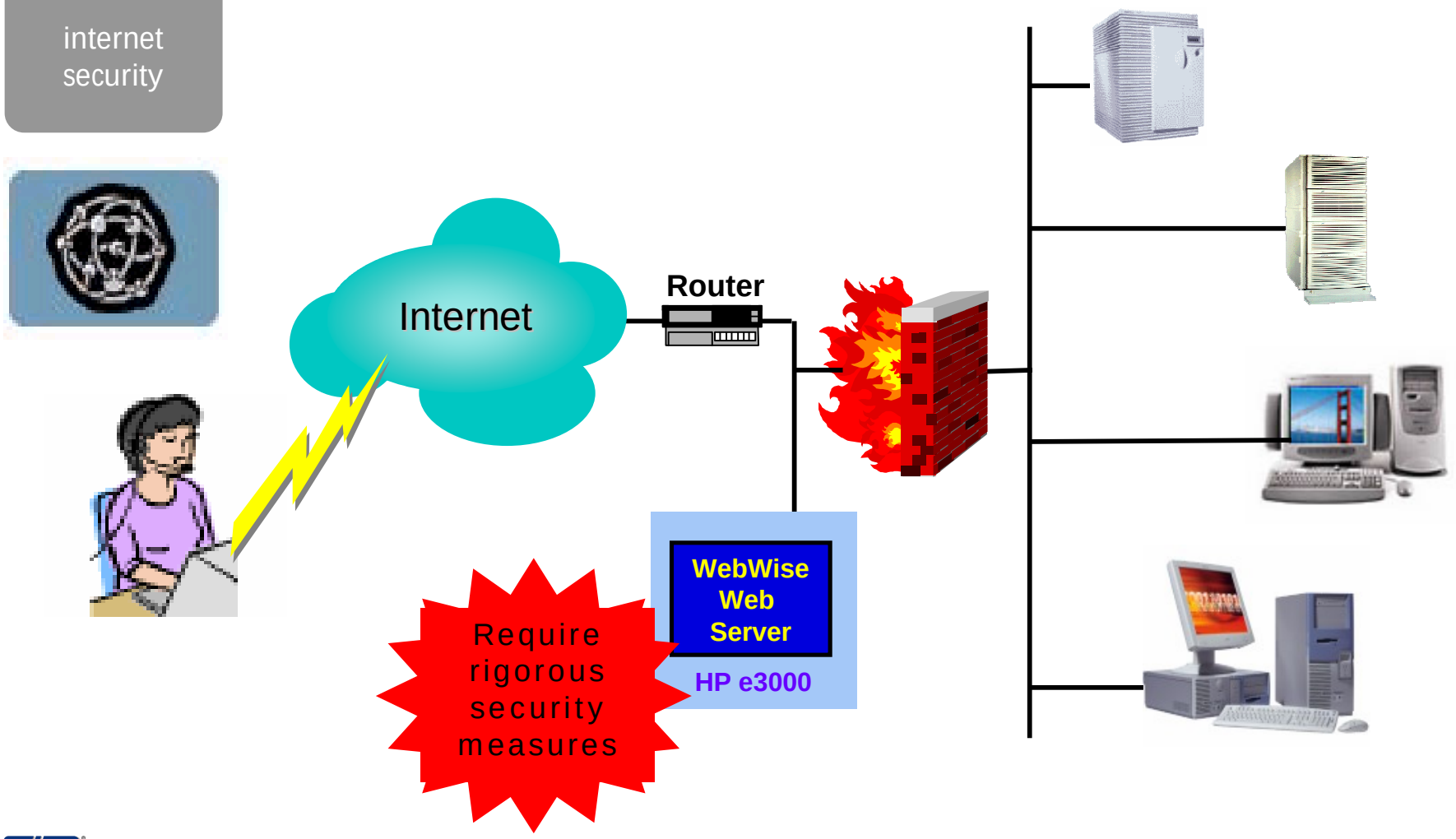
using WebWise. as a standalone web server



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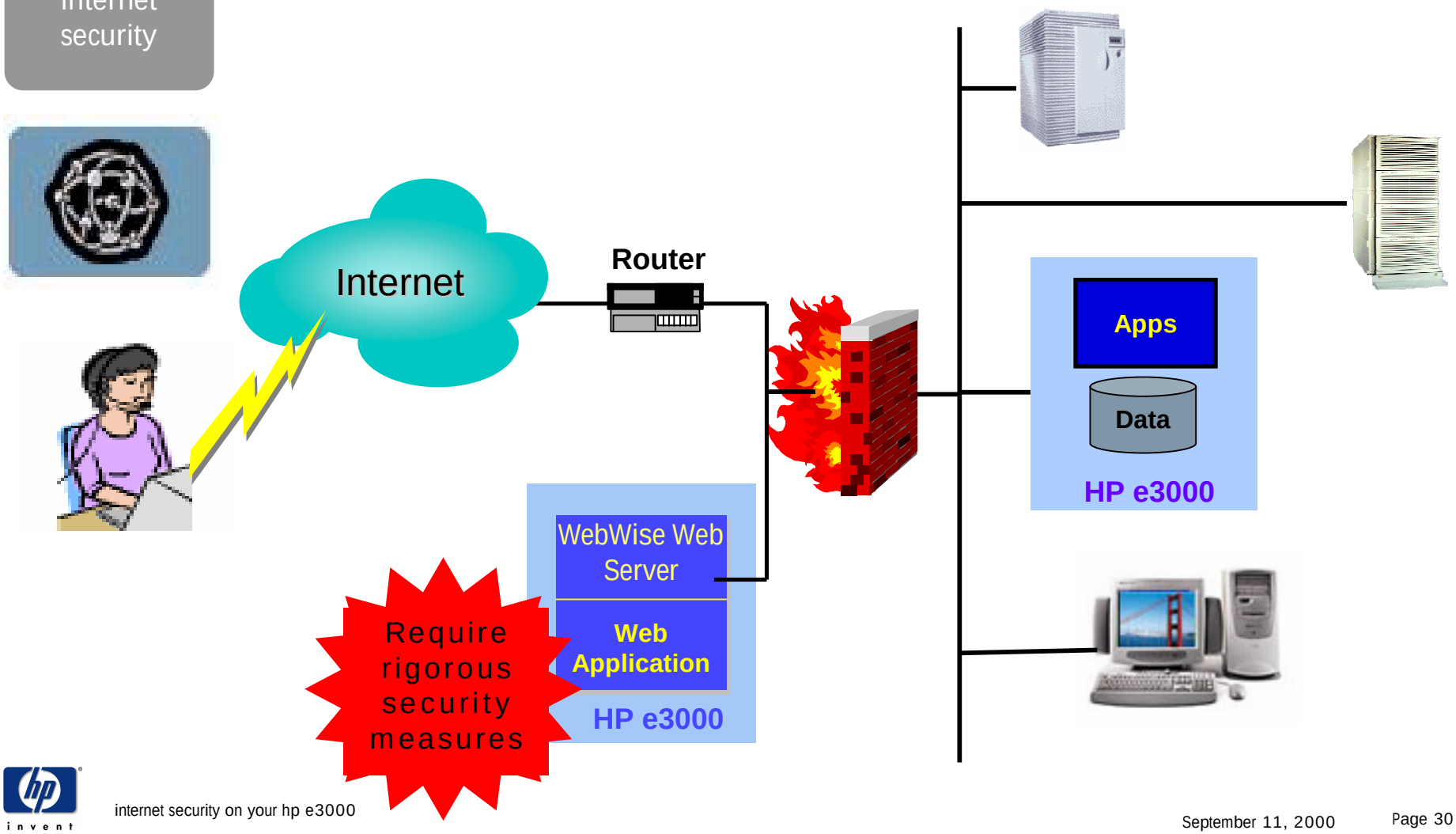
using WebWise. web server to access hp e3000 data #3



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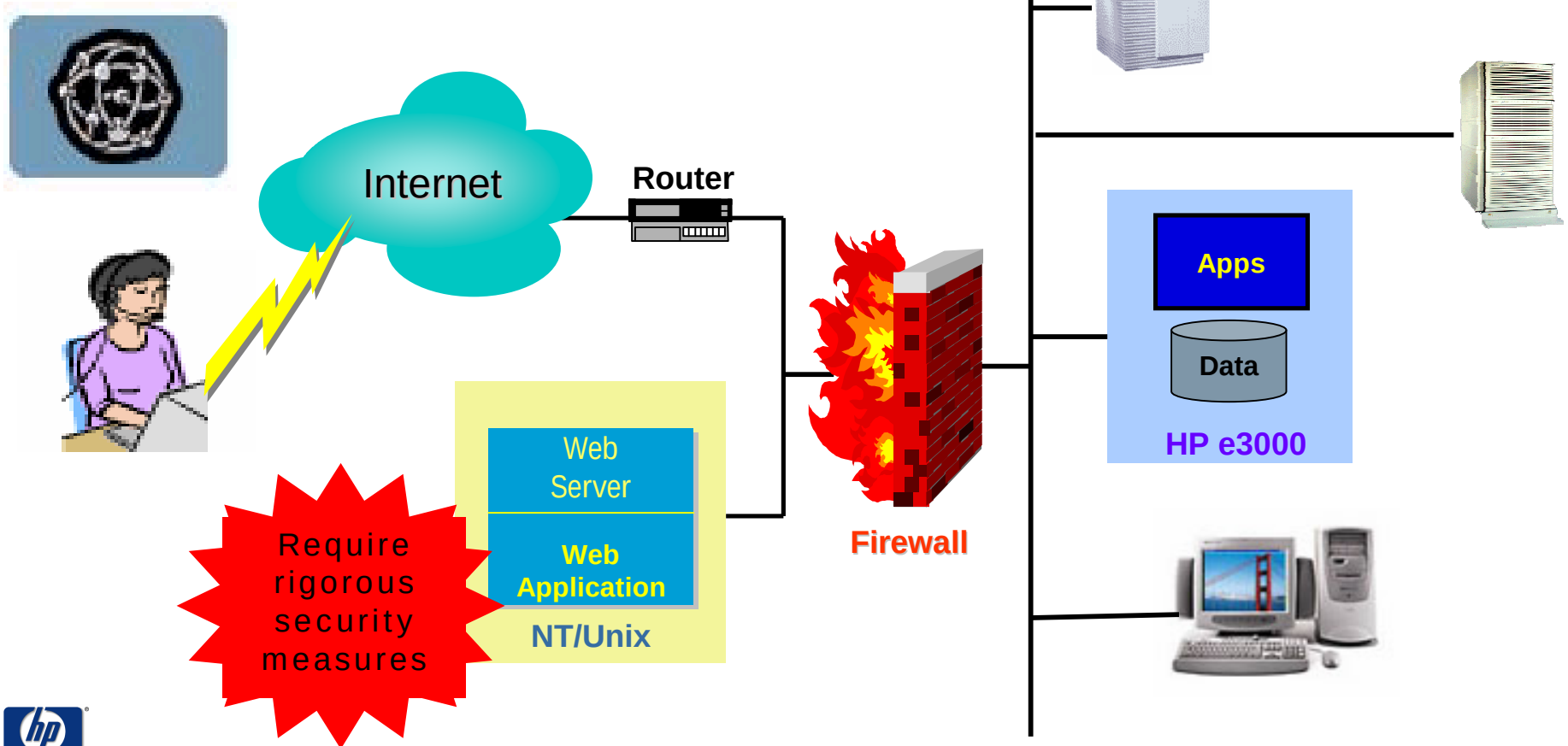
using NT/Unix web server to access hp e3000 data



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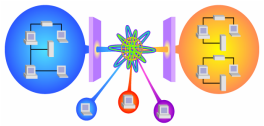
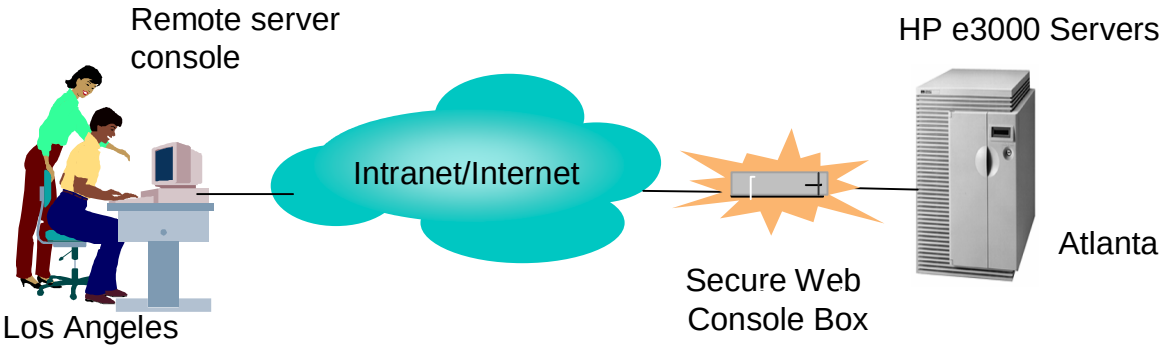
hp's secure web console



- Now, manage your servers over your intranet
  - **From any location in the world**
  - **From any browser** **(Netscape or Microsoft IE)**
- Remote browser access to the server console port
  (access to powerful, low level console commands)
- One person, one “console”, several servers
  - **“Bookmark” the servers**
  - **Manage from the comfort of your office**



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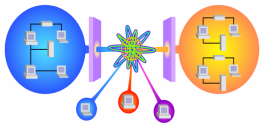
some security tips



- Use a firewall
- Put your sensitive data behind the firewall
- Disable unneeded in-bound network services
- Make sure remaining services are configured properly
- Activate logging facility and regularly examine the logs to detect intrusion attempts
- Stay current on releases & patches

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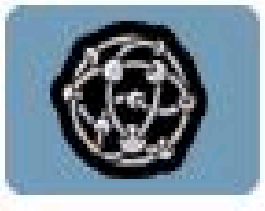
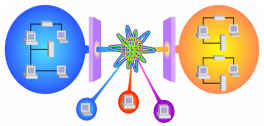


some security tips continued...



- Properly configured all subsystems not to allow unintentional access points
  - **Restrict file system access by using file access mode, permissions, lockwords and ACDs**
  - **Regularly change all accounts, group and/or users passwords**
  - **Limit the number of login accounts on the server**
- Use HP WebWise. secure web server for secure communication
- Web server security tips

  please go to HP Web*Wise*. secure web server tutorial

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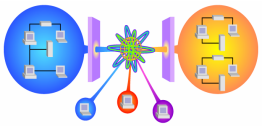
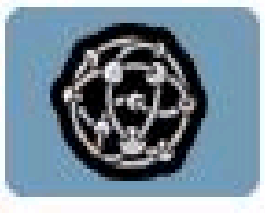
Continue to monitor and evolve...





- Evaluate and strengthen the OS system security
- Explore key security enabling technologies
  - **secure protocols**
  - **PKI, VPN, IPSec and etc.**
- Explore key security services and products

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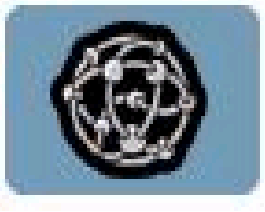
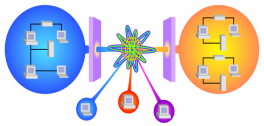


further references



- **Configuring and Managing MPE/iX Internet Services Manual**
- **Manager's Guide to MPE/iX Security**
- **HP Security Monitor/iX User's Guide**
- **Web Enabling Your HP e3000 Applications and Data Access**
  http://www.businessservers.hp.com/solutions/internet/accesswp.html
- **HP e3000 Internet and E-services Solutions Guide Overview**
  http://www.businessservers.hp.com/solutions/internet/CSY0010UQ.html
- **RSA BSAFE SSL-C commercial product**
  http://www.rsasecurity.com/products/bsafe/sslc.html

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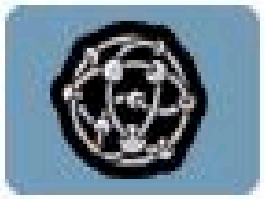
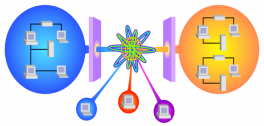


join the hp3000-l community



- Available as a mailing list and as the Usenet newsgroup comp.sys.hp.mpe
- In-depth discussions of all things HP e3000
- Talk with other e3000 users
  - **seek advice, exchange tips & techniques**
- Keep up with the latest HP e3000 news
- Interact with CSY
- **`http://jazz.external.hp.com/papers/hp3000-info.html`**

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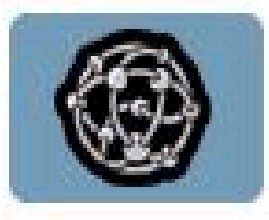

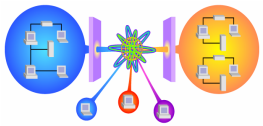

Questions?