IBM Software Group

“Solving the Linux Security Puzzle with Tivoli”

Security Management Solutions for Linux and the Enterprise

IBM Tivoli Access Manager

Tivoli software

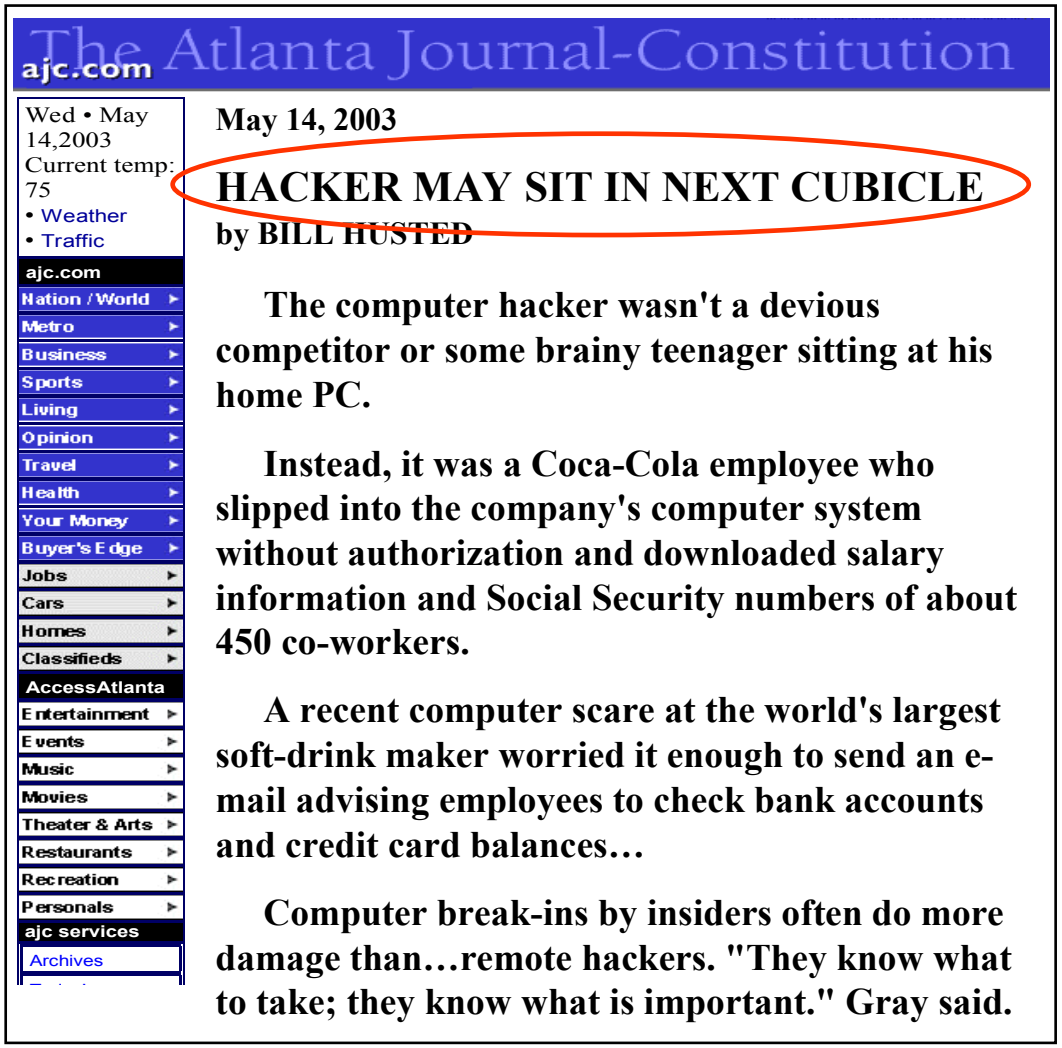
Shawn L. Young, Market Manager

e business software

May 15th | 2003

Internal Threats are the Greatest Threats…

Case Study



The Atlanta Journal-Constitution

ajc.com

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May 14, 2003

HACKER MAY SIT IN NEXT CUBICLE

by BILL HUSTED

The computer hacker wasn't a devious competitor or some brainy teenager sitting at his home PC.

Instead, it was a Coca-Cola employee who slipped into the company's computer system without authorization and downloaded salary information and Social Security numbers of about 450 co-workers.

A recent computer scare at the world's largest soft-drink maker worried it enough to send an e-mail advising employees to check bank accounts and credit card balances…

Computer break-ins by insiders often do more damage than…remote hackers. "They know what to take; they know what is important." Gray said.

"The hacker who just stole your records is just as likely to be an insider as an outsider…

"There's the notoriety, bad press and Wall Street doesn't like it,'

"Some computer systems simply allow users too much freedom to roam."

And Identity Theft is Powerful Incentive

Case Study

washingtonpost.com

Identity Theft More Often an Inside Job

Old Precautions Less Likely to Avert Costly Crime, Experts Say

By Brooke A. Masters and Caroline E. Mayer
Washington Post Staff Writers
Tuesday, December 3, 2002; Page A01

You can take all the steps you want to protect yourself against identity theft: Guard your wallet, shred your personal financial papers before throwing them in the trash, monitor your credit reports.

But no matter how careful you are, you may not be able to avoid having your identity assumed by someone who wants to go on a buying spree, using your credit card, bank account, Social Security number or other personal data.

That's because the nature of identity theft has changed and the threat today is more likely than ever to come from insiders -- employees with access to large financial databases who can loot personal accounts -- than from a thief stealing a wallet or pilfering your mail. Banks, companies that take credit cards and credit-rating bureaus themselves don't do enough to protect consumers, critics say.

"You can spend a lot of time and money trying to protect yourself," obtaining copies of your credit reports every three to six months, buying a credit-monitoring service to alert you when someone is making inquiries about your account or even buying identity-theft insurance, said Robert Gellman, a D.C. privacy consultant. "You can do as much as you can do, but it won't stop you from being a victim. There's nothing I'm aware of that will guarantee you not become a victim."

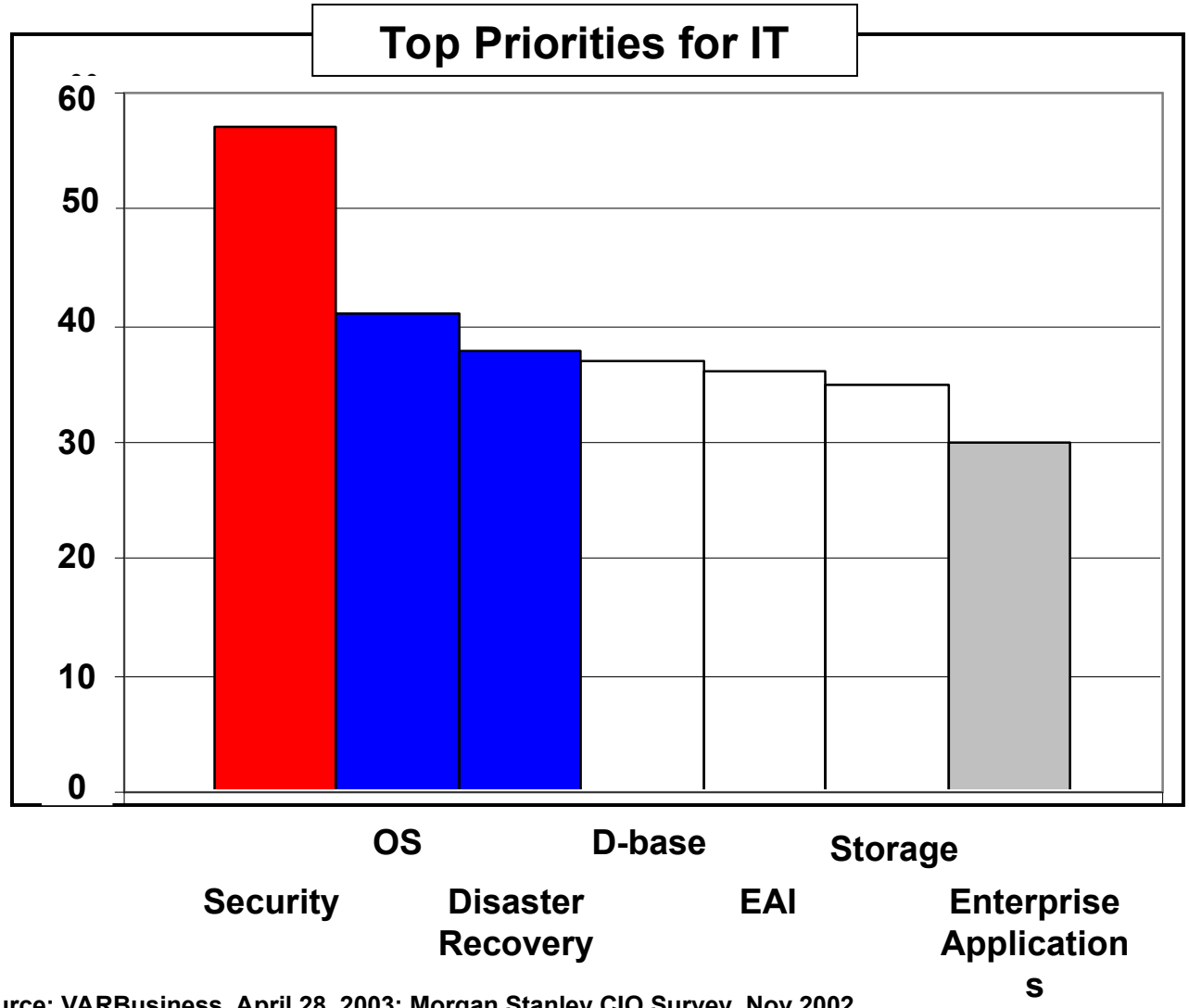
That fact was underscored last week when federal prosecutors announced that they had arrested and charged three people in connection with a scheme to steal the personal financial information of 30,000 Americans by downloading data from a computer and selling it to scam artists. The prosecutors said it was the largest case of identity fraud ever detected.

Identity Theft ring stole $2.7M

- **Employees received $30 per report**
- **30,000 reports were stolen over three years**
- **Identity Theft costs US $5B and is growing at over 100% annually**

"A lot of companies have gone to a lot of effort to protect themselves from being hacked, but it's a lot harder to stop a rogue employee…We have the technology but we're not using it."

Security Remains Key Priority



Source: VARBusiness, April 28, 2003; Morgan Stanley CIO Survey, Nov 2002

Agenda

Linux and security

- Common myth: “Linux security is inadequate”

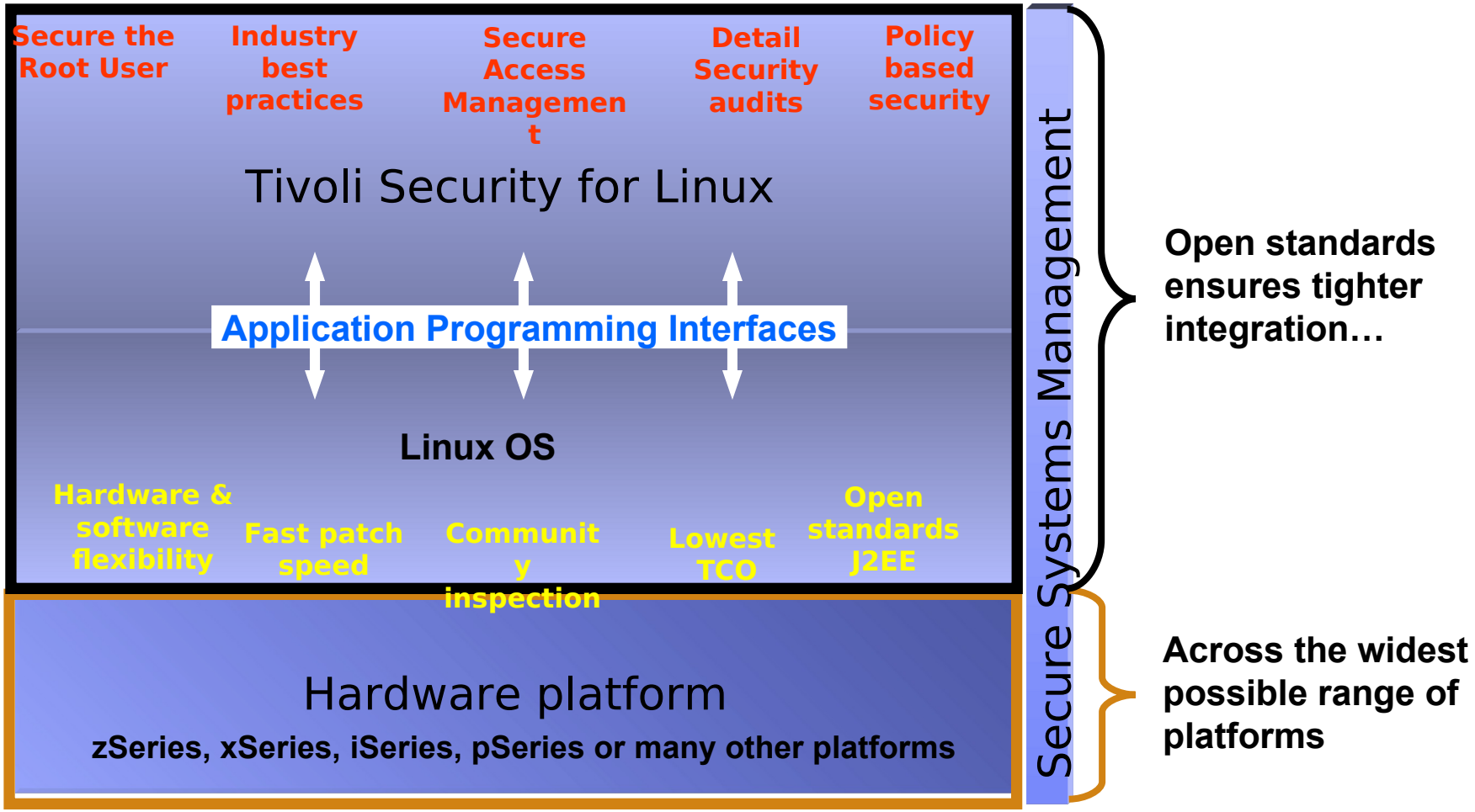
Ensuring full fledged security for your company

- Common flaws
- Plugging holes

Tivoli security management solutions

- IBM Tivoli Access Manager for Operating Systems
- IBM Tivoli Access Manager for e-business
- IBM Directory Integrator

Linux Enables Broad and Robust Security



Myth: Linux Security is Inadequate

Linux security compares favorably to other Operating Systems…

- The same variety of security and cryptographic products are available

While offering distinct advantages

- Open source community ensures that weaknesses are known, reported and fixed
- Lack of vendor “lock in” allows customers to use Best in Breed products
- Open source allows security products to be built that are more tightly integrated with the OS

A Wide Variety of Tools are Available for Linux

Readily Available Linux Tools

- SNORT
- LIDS
- Firewalls
- Port Sentry
- Stack Guard

Protect Against a Wide Variety of Threats

- Hackers
- Stack Smashing
- Buffer Overflows
- Packet Sniffing
- Parsing Errors
- Denial of Service Attacks

Many of these tools are available free or at low cost

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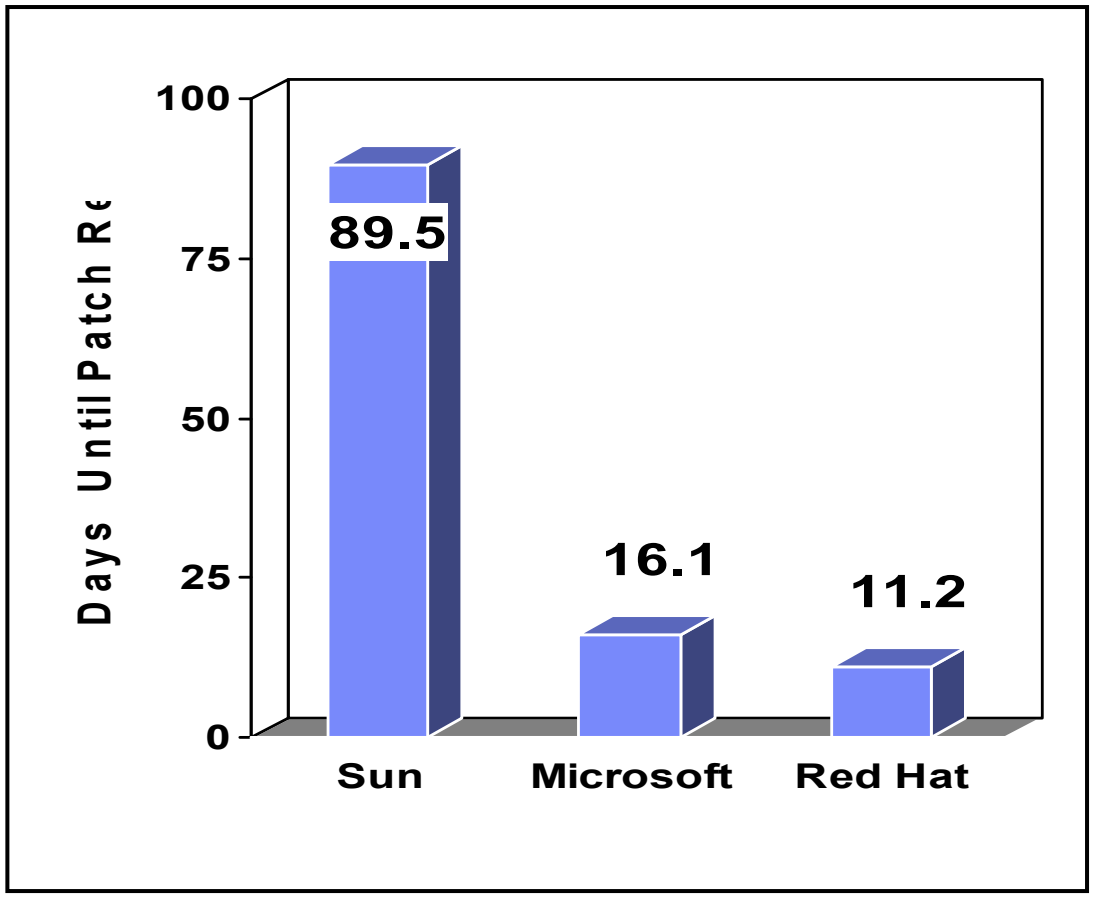
Linux Community Patches Vulnerabilities Quickly



- Open source functions like an academic community
- Built in monitoring and updating tools are available

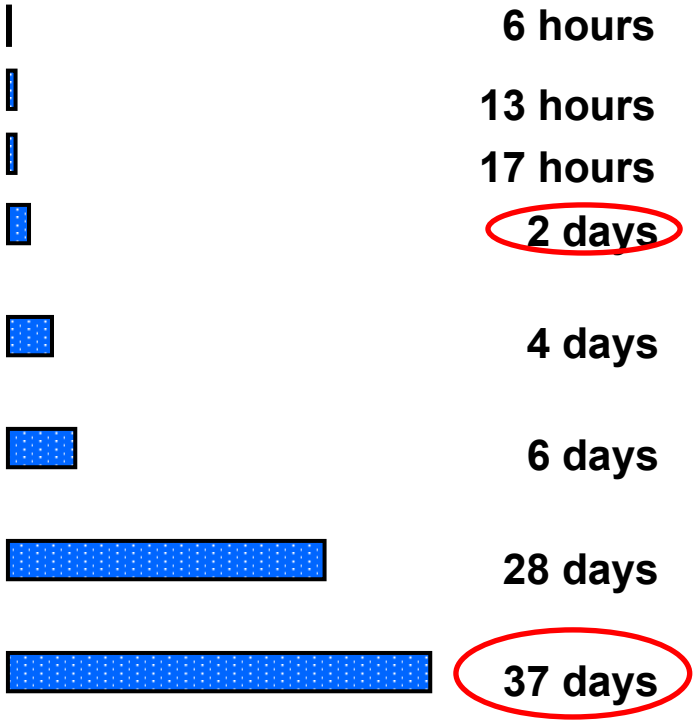
  —UP2DATE

Source: BugTrac Survey

Linux Community is Highly Responsive

Case Study

On April 4, 2001 a bug was found allowing a network time daemon to be exploited…



Time Elapsed	Activity
6 hours	Work around posted to Bugtrac
13 hours	Pointer to a FreeBSD patch posted
17 hours	FreeBSD releases a security advisory
2 days	Mandrake Linux releases advisory & updated patches
4 days	Red Hat posts advisory & pointer to patches
6 days	IBM releases advisory and temporary fix for AIX
28 days	Compaq releases advisory & patch for TRU 64
37 days	Sun has yet to release advisory despite Solaris' vulnerability

Source: BugTrac, Internal IBM analysis

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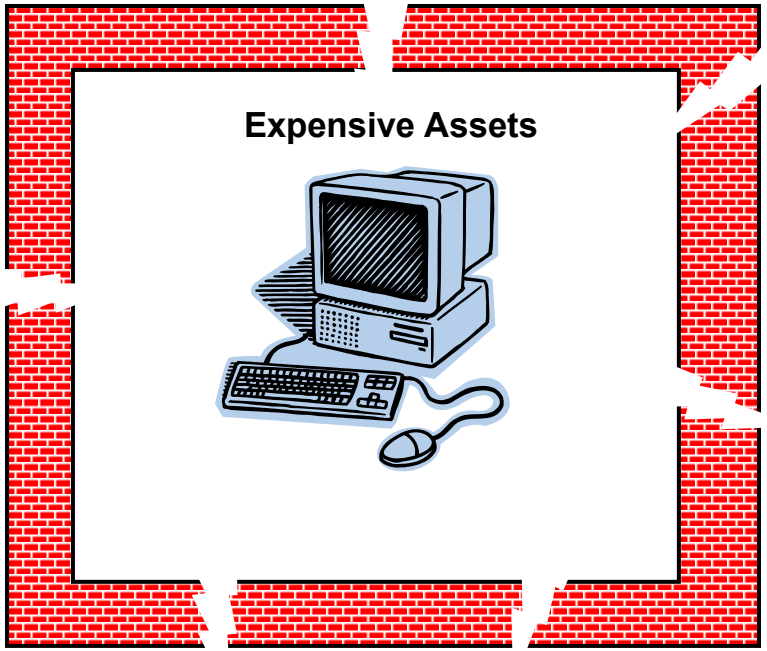
Vendor "Lock In" Undermines Security

Best in Breed

"Locks out hackers"

2nd Rate

"Locks in gaps"



"Most hacks result from buggy software…"

--AT&T Research

Myth: Linux is not Secure

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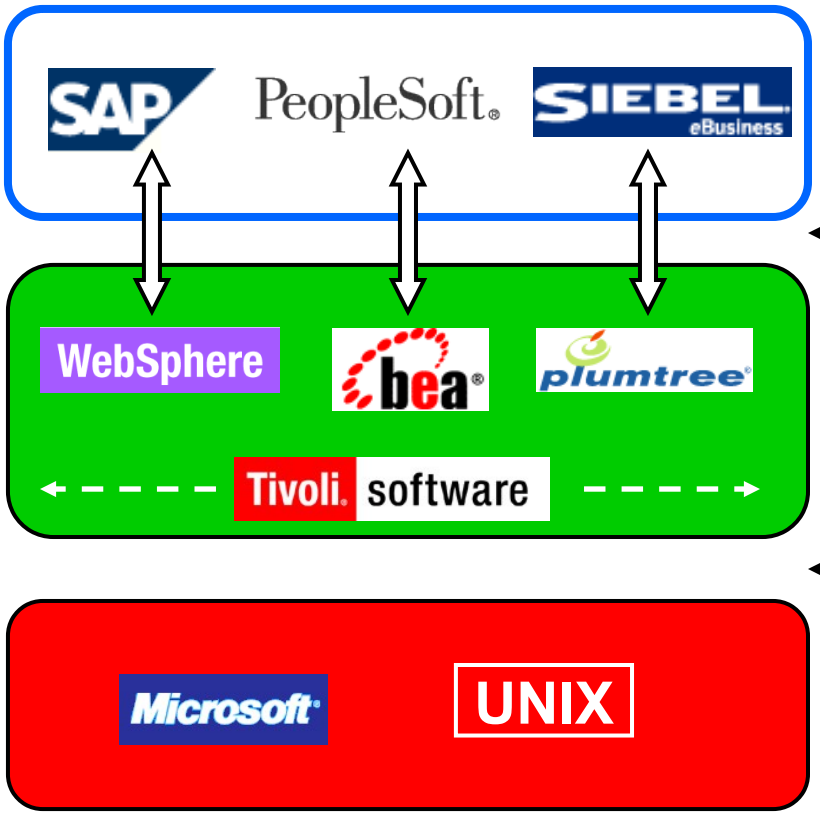
Buggy Software Augments Integration Vulnerabilities



Tight integration has resulted in virtually seamless operation…

While hackers continue to exploit integration gaps at the OS level.

Linux can change that!

A Virtuous Circle of Value: Tivoli and Linux

Linux

- Linux lowers the cost of ownership
- Linux is moving to business critical applications
- Linux may not be the only platform in your business

Tivoli

- Tivoli lowers the cost of operations
- Tivoli secures business critical applications
- Tivoli provides consistent security across heterogeneous platforms

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- **Common flaws**
- **Plugging holes**

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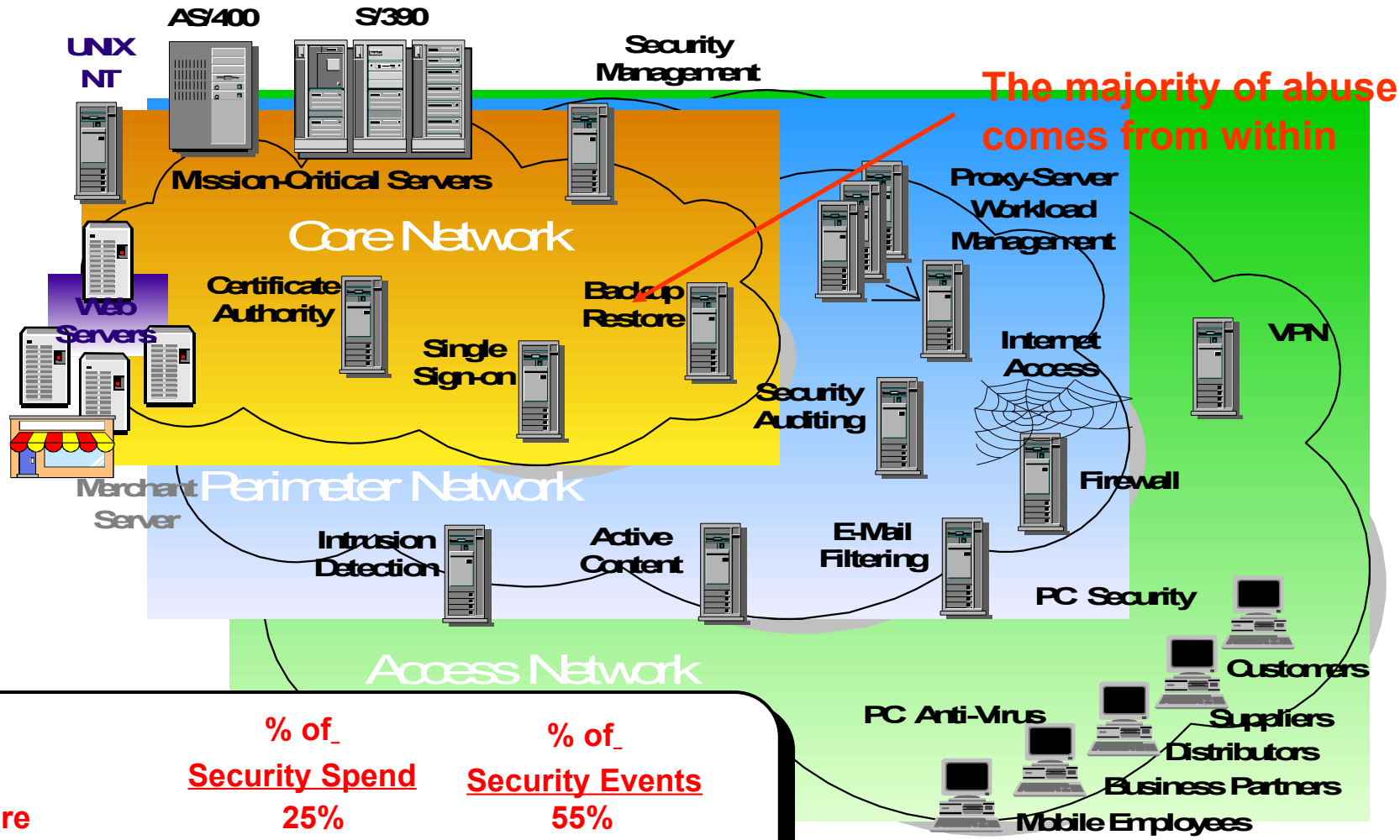
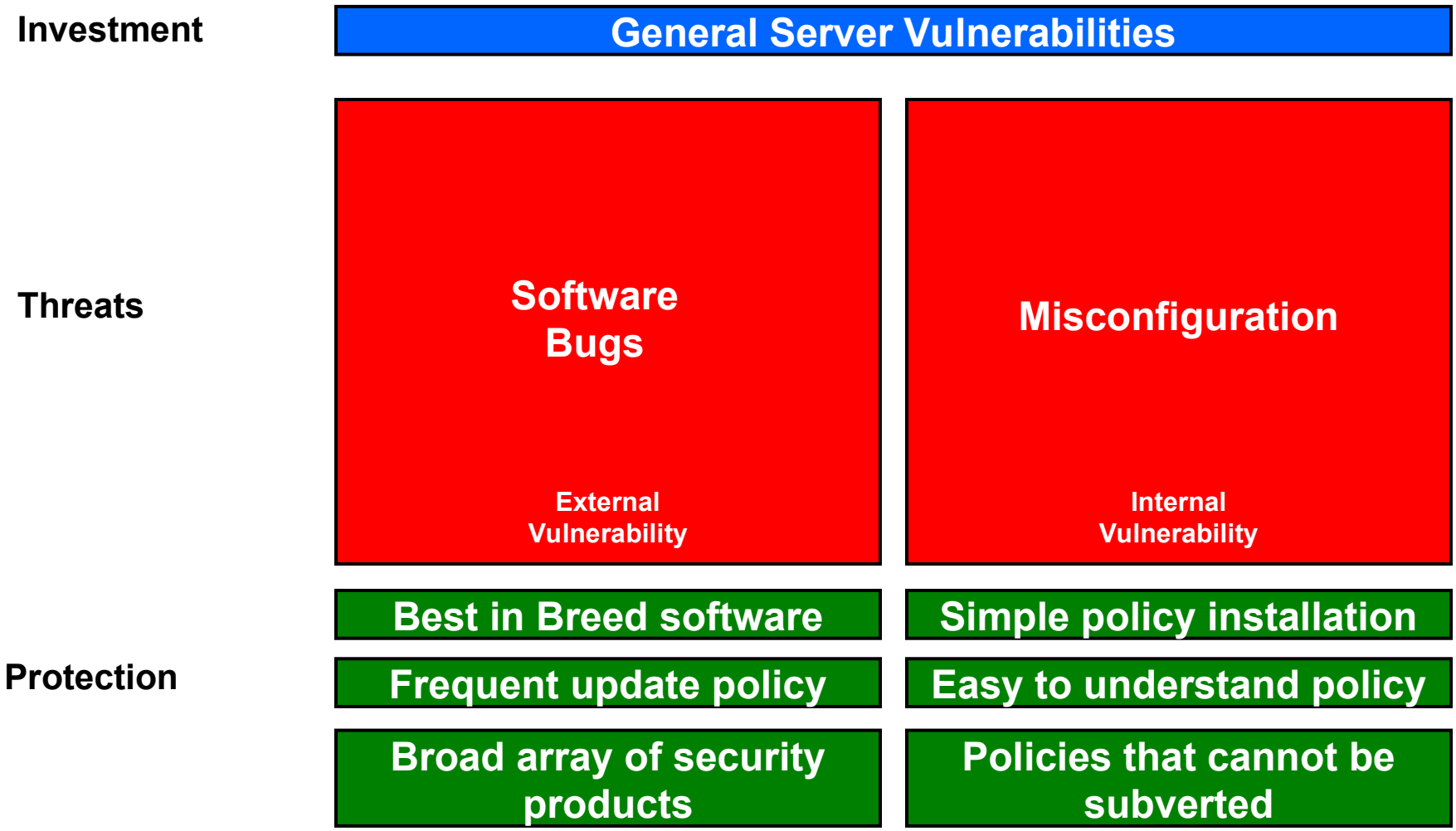
The Total Security Map

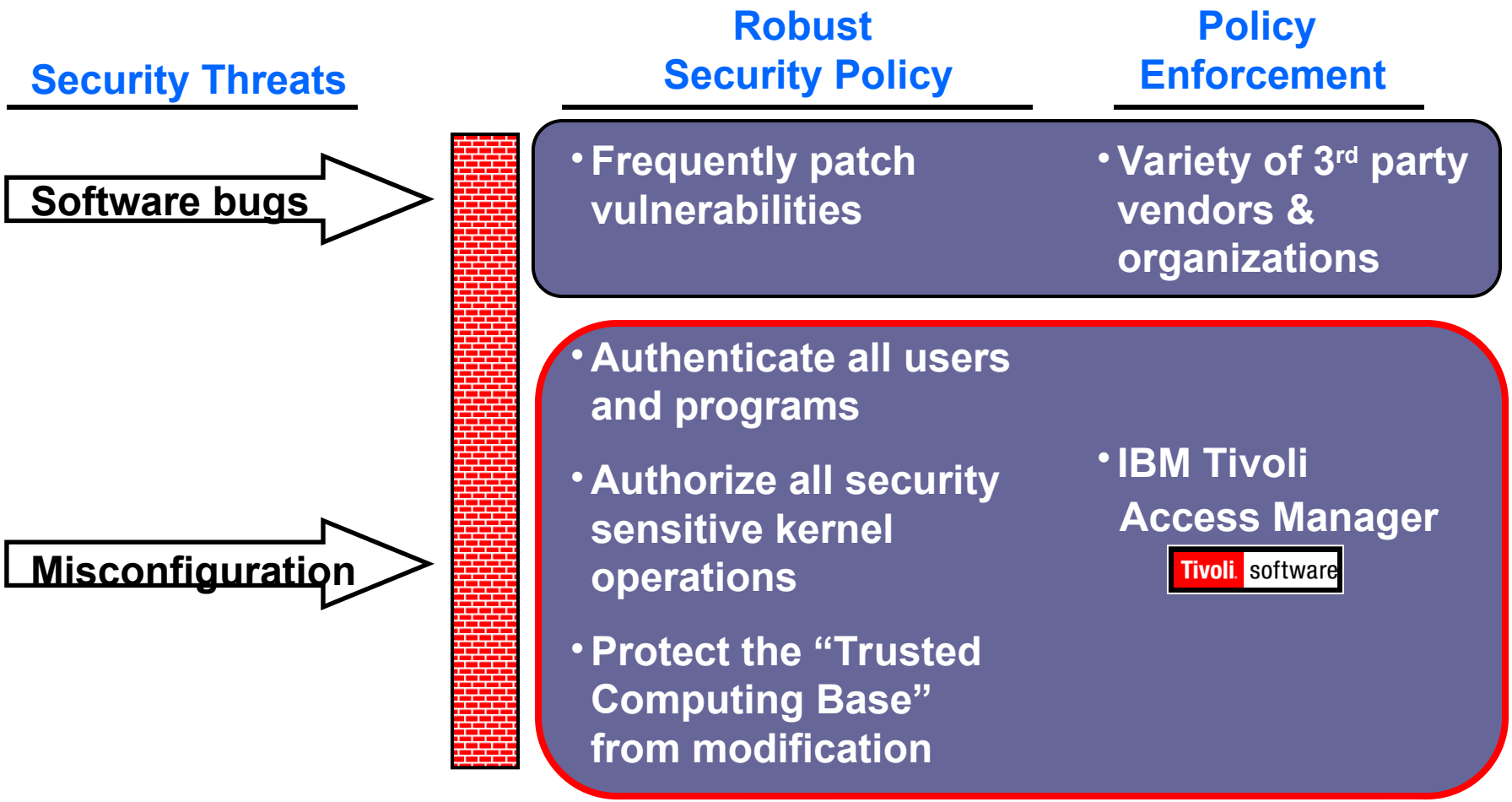


	% of Security Spend	% of Security Events
Core	25%	55%
Perimeter	31%	45%
Access Network	44%	

Two Flaws Cause Security Vulnerabilities



Security Begins (and Ends) with Security Policy



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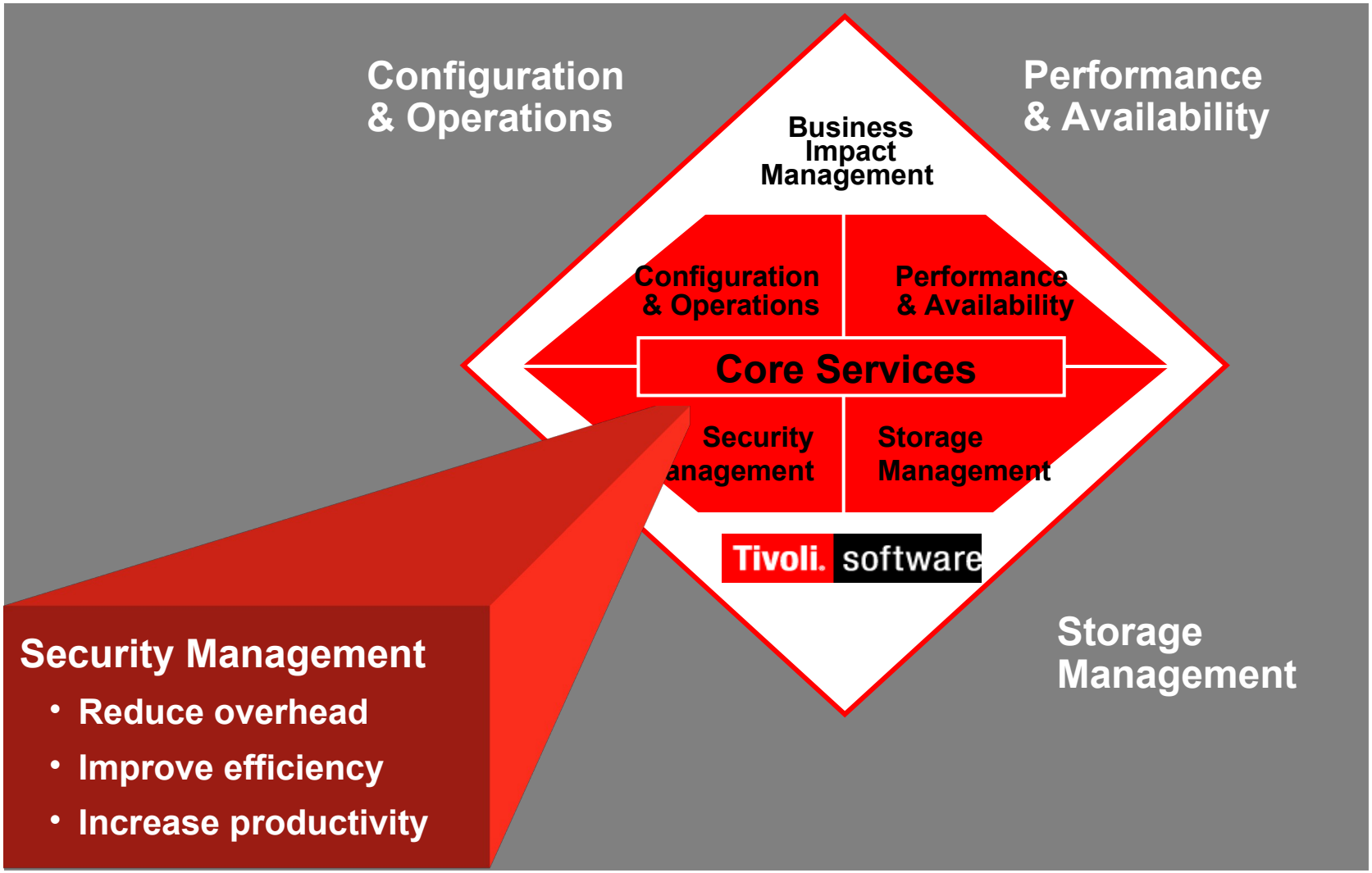
IBM Tivoli Software Portfolio



Customers Plagued by Multiple Security Challenges

Provisioning Users	• **"45% of accounts are invalid"**
Managing Access Control	• **# 1 security threat results from inadequate controls on employees**
Protecting Privacy	• **"No systemic method of complying with customers' privacy concerns"**
Synchronizing Information	• **"Large amounts of redundant, inaccurate, data clogs infrastructure"**

Easy to Use, Integrated Tools for Rapid ROI

Foundational tools of secure environments

Easy, Centralized Administration

Access Manager for Operating Systems

- Combats #1 security threat
- Secures business critical applications
- Ensures privacy

Access Manager for e-business

- Reduces application cost by 30%
- Eliminates ~50% of Help Desk calls
- Seamless customer experience

Broad Integration

AMOS: Assurance for Key Relationships

Linux Security Challenges

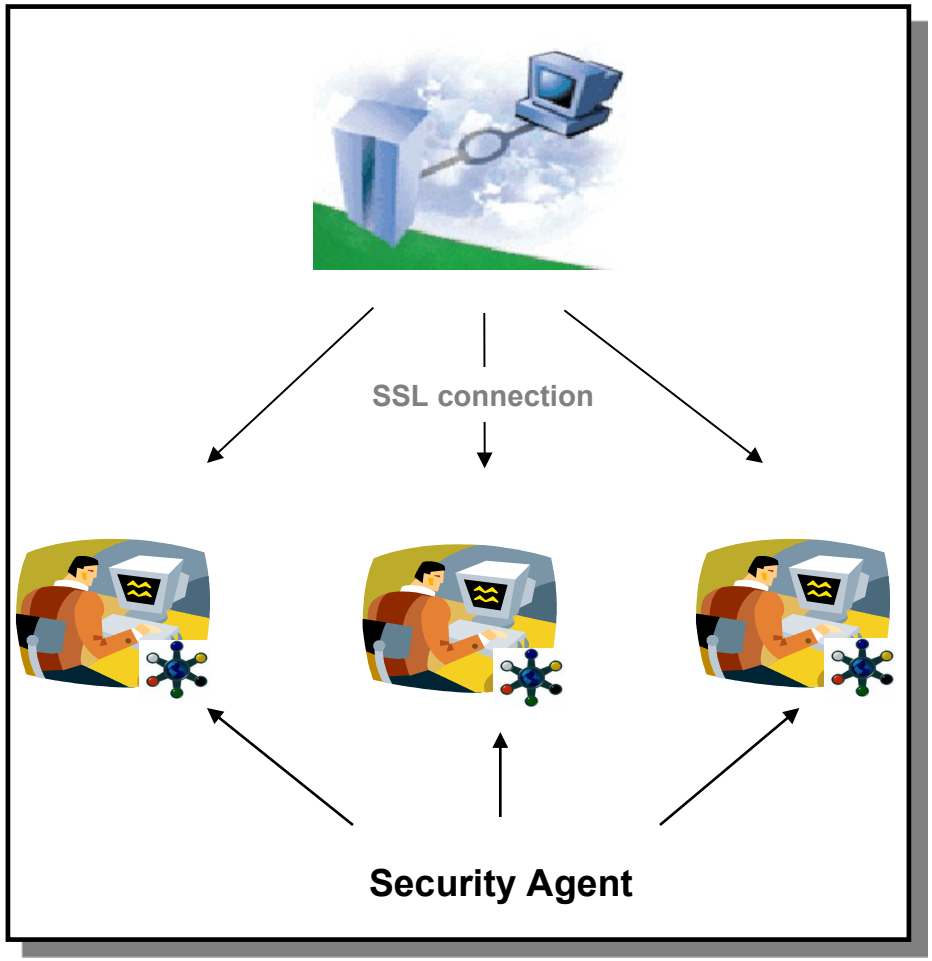
- Application security is vulnerable, exposing private consumer and partner information
- Root users…
  - —Have unlimited access
  - —Can compromise audit data
  - —Reduce accountability
  - —Are common target for hacking

Tivoli Response

- Locks down applications at OS level
- Access Manager for Operating Systems
  - —Limits access
  - —Creates audit trail
  - —Provides accountability
  - —Presents poor target for hacking

Recently expanded Linux coverage

AMOS Relies on Simple Architecture



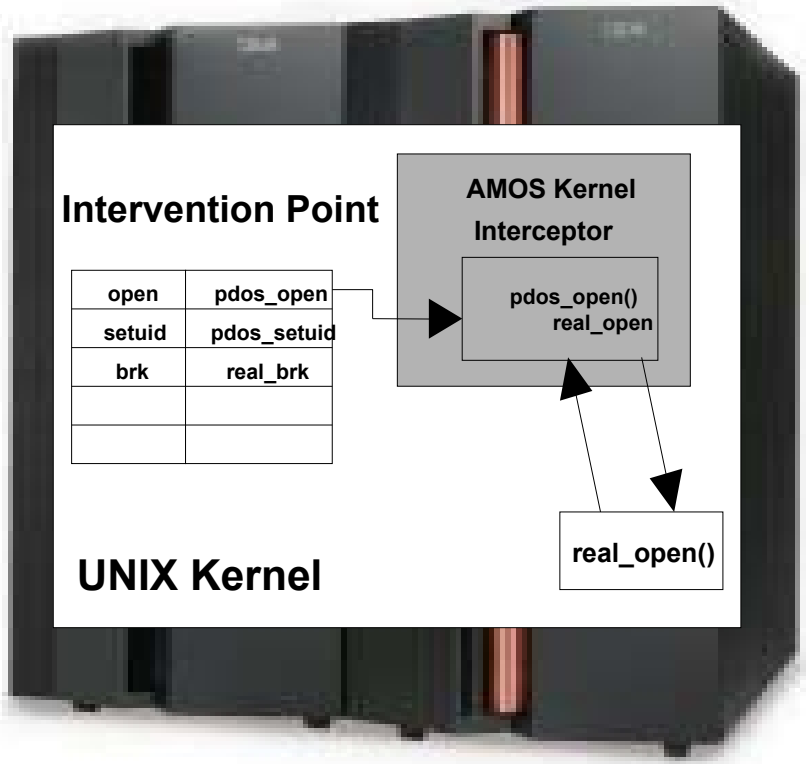
Access Manager
Management Server
Centralized server contains
- **Policy database**
- **User IDs**

Management Server maintains policy
Security Agent enforces policy

Security Agent
Erects security perimeter
- **Intercepts system call**
- **Make access decision**
- **Writes audit record**

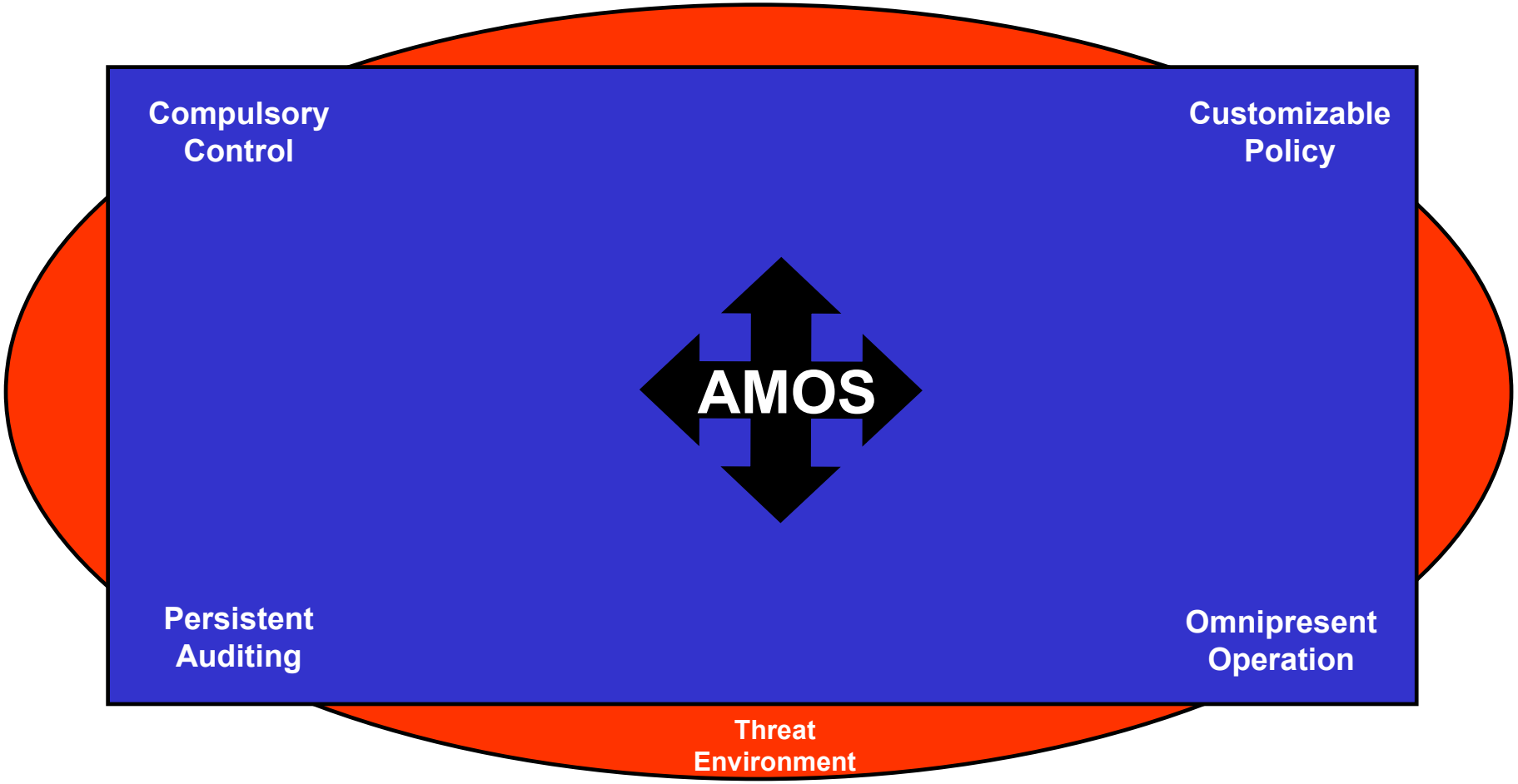
General Scenario: Joe Administrator

Action	In UNIX	In AMOS
 Joe logs in	e UID 1032	•joe UID 1032
 su to root	oot UID 0	•joe UID 1032 •Writes to audit log
 vi/etc/passwd	INTERCEPTED!!!	•Access = R, W •Resource = /etc/passwd •joe UID 1032 •Writes to



- Tracks original login ID
- Audits at all times
- Applies control to each

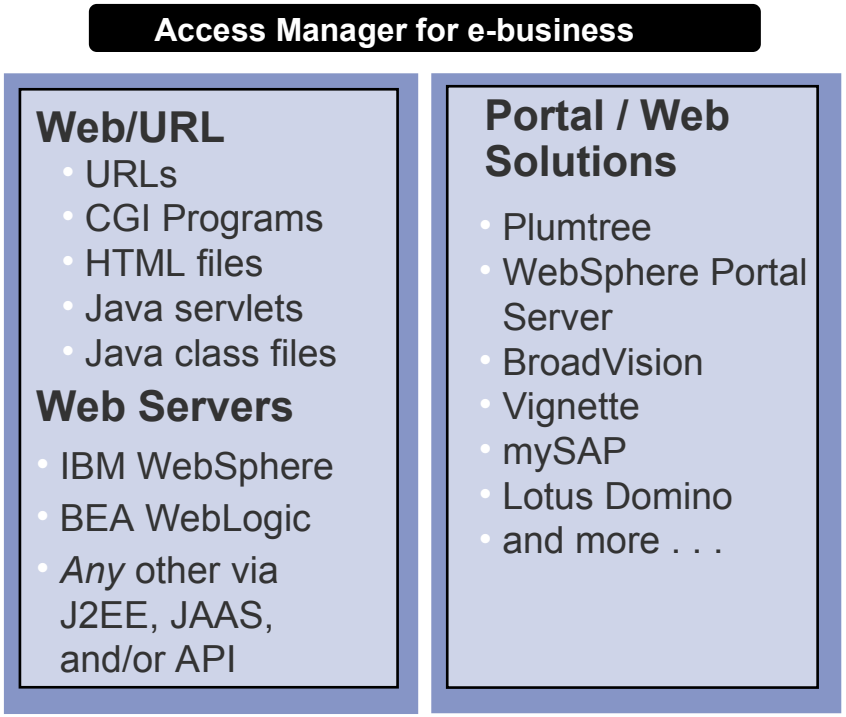
AMOS Security Policy is Robust



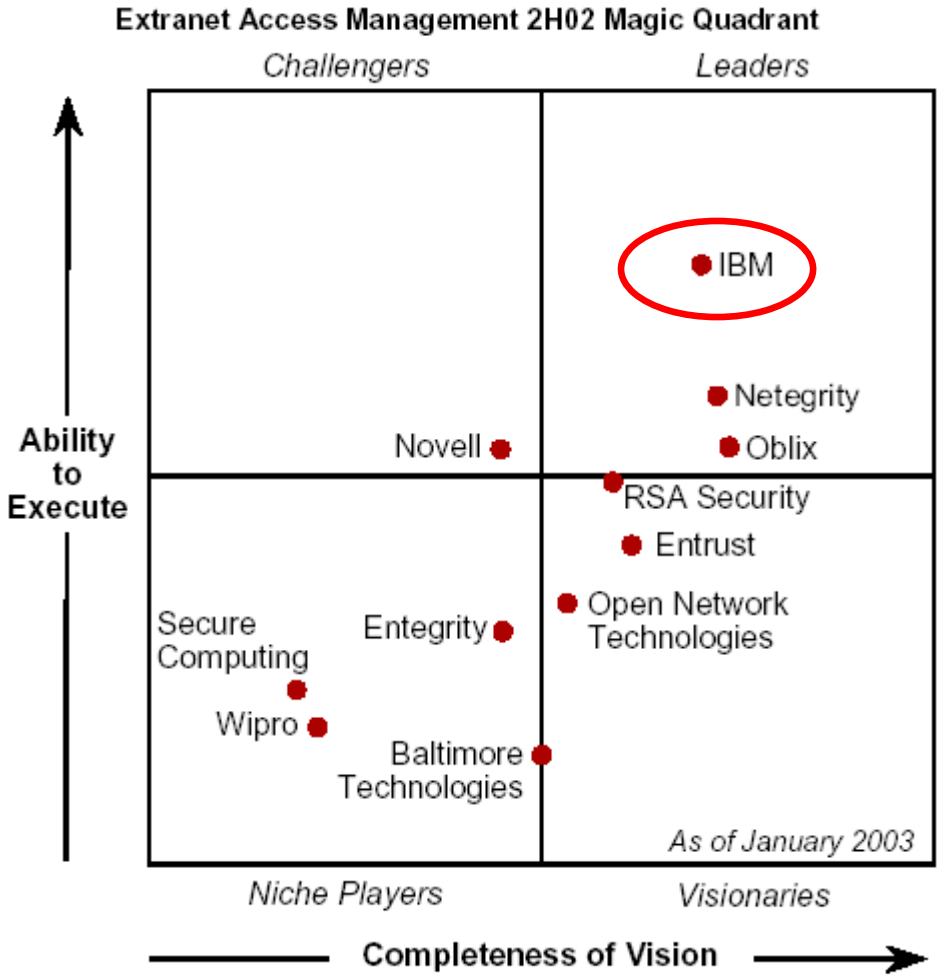
Tivoli Access Manager for e-business

Multi-purpose security environment

- ***Centralized administration***
- ***Integrates with industry's leading solutions***
- ***Supports a secure e-business On-Demand infrastructure***



Access Manager for e-business is Clear Leader



Source: Gartner Research

Ability to execute

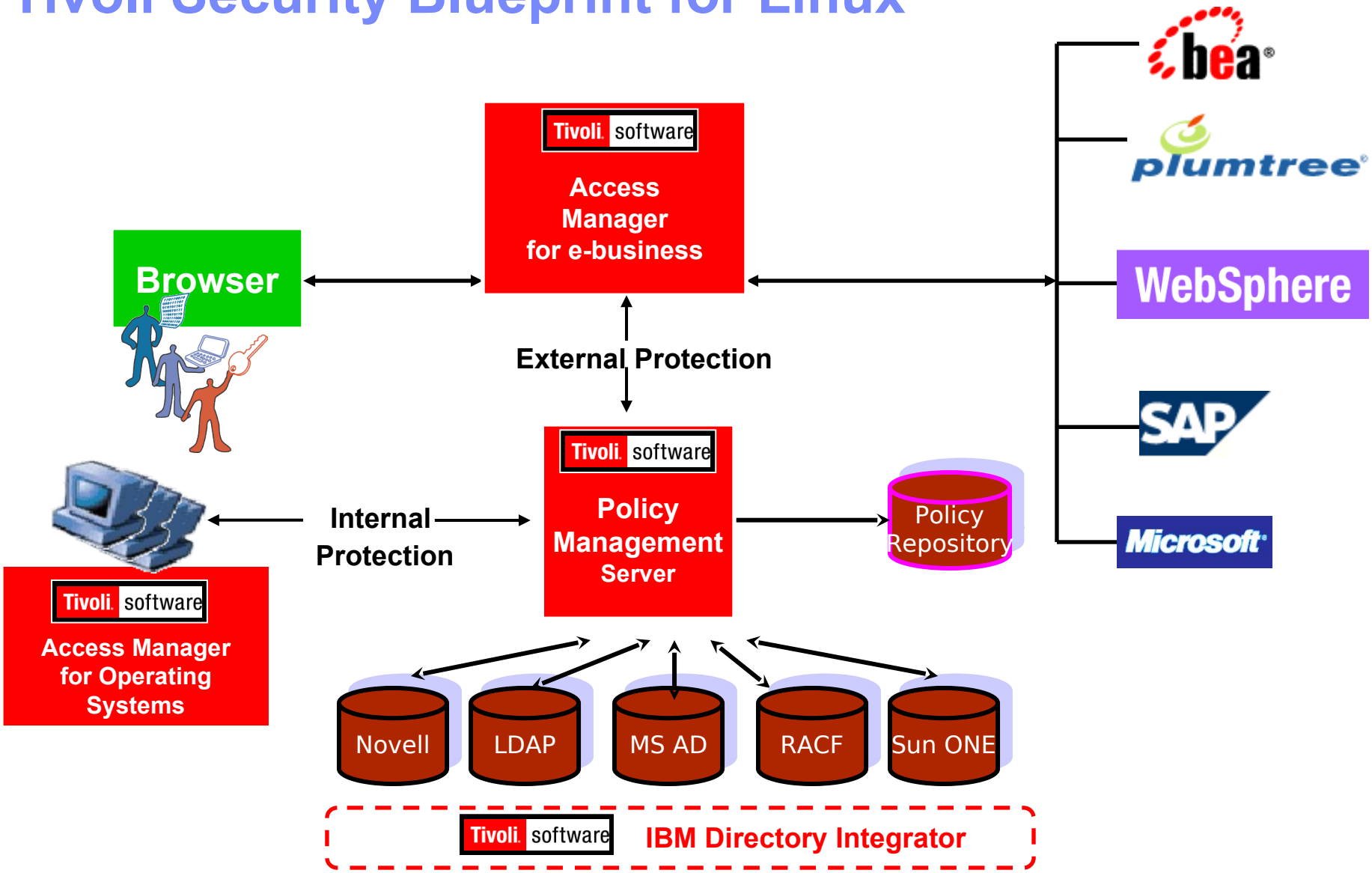
- Robust technology
- Highly scalable
- Broad integration for comprehensive protection
  - —Web pages
  - —Web application servers
  - —Portals

Complete Vision

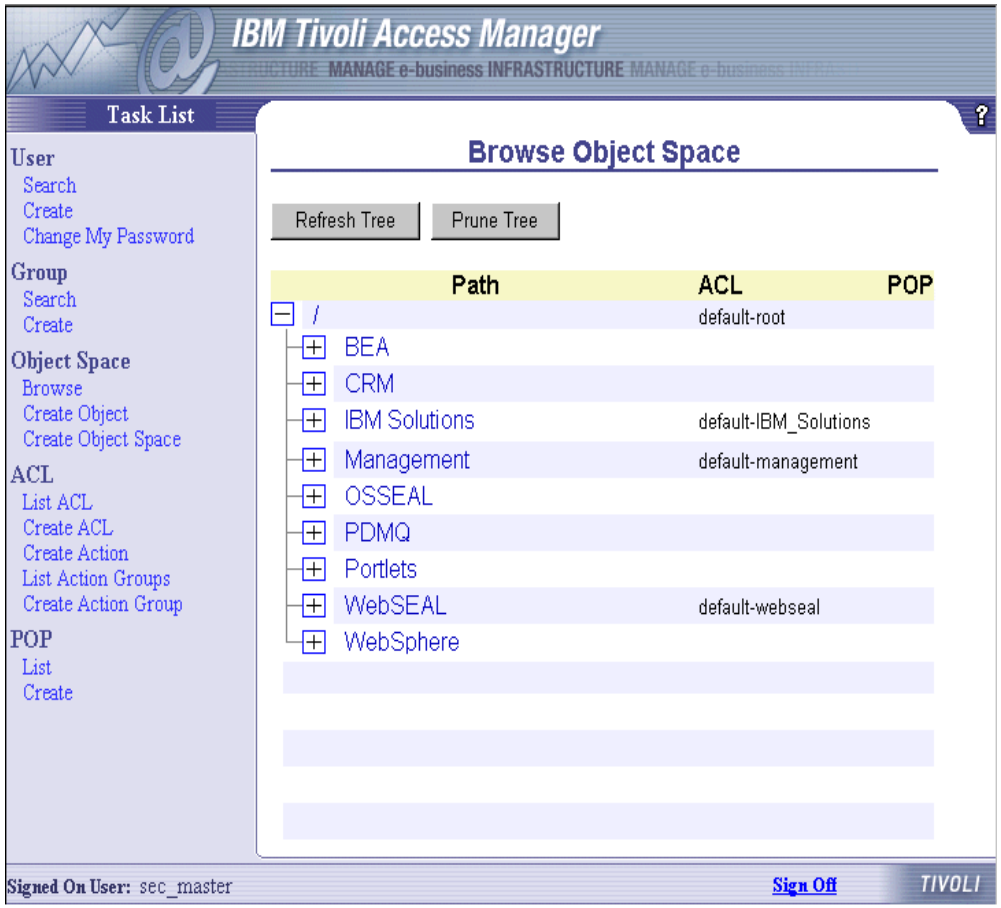
- Single sign on
- Cost reduction
- Identity management
- Federated identity
- Web services

January 8, 2003 Research Note "Extranet Access Management 2H02 Magic Quadrant" by John Pescatore and Ray Wagner

Tivoli Security Blueprint for Linux



Administration is Centralized and Easy



Administration conducted through a Web GUI

- **Centralized administration with distributed access**

Delegated, hierarchical administration

- **Maximizes productivity**
- **Minimizes abuse**

Other Tivoli Products Support Linux

Tivoli Identity Manager

- Provides method of automating the provisioning of resources, privileges and rights to users
- Fully integrated with other Tivoli products
- Provides for substantial ROI in a short period of time
  - From 40-55% of Help Desk calls are for password related
  - Each call costs ~$20
- Enhances security—up to 30-60% of customer accounts are invalid

Tivoli Privacy Manager

- Provides an automated method for companies to address consumers' privacy concerns
- Provides an automated method of complying with HIPAA
- Tags consumer data with "Business Use" profile, specifying ways in which consumer data can be used

IBM Tivoli Strongly Supports Open Security Standards

Web Services Security

- WS-Security (OASIS)
- WS-Trust, WS-SecureConversation, WS-Policy
- XML Digital Signatures; XML Encryption; XKMS

Federated Identity Management

- Open standards
- Security Assertions Markup Language: SAML (OASIS)
- Kerberos
- Open interface to connect to Microsoft Trustbridge and Liberty Alliance technology

Open or proposed open Java/Middleware Standards

- J2SE (Java 2 Security Edition)
- JAAS (Java Authentication and Authorization Service) Programming Model
- JSSE (Java Secure Socket Extension)
- JCA (Java Cryptography Architecture)
- JCE (Java Cryptography Extension)
- CSIv2 (Common Security Interoperability)
- JSR115 for pluggable J2EE Container authorization
- Java 2 and JAAS
- aznAPI

General Security Information

CERT for advisories on viruses, worms and vulnerabilities

- **http://www.cert.org**

SANS for general information on IT security

- **http://www.sans.org**

Industry recognition for Access Manager

- Finalist, Best in Show, LinuxWorld '03
- Winner, Mindcraft Extranet Performance Benchmark
- Winner, Gartner Leadership Quadrant
- Winner, 2002 Crossroads A-List Award
- Winner, Information Security Excellence Award
- Winner, Frost & Sullivan Market Excellence Award
- Winner, VARBusiness Annual Report Card
- Commended, SC Magazine 2002 Best Security Management

Integration and partnerships