



IBM and Next Generation Linux

## Linux for Business-Critical Workloads

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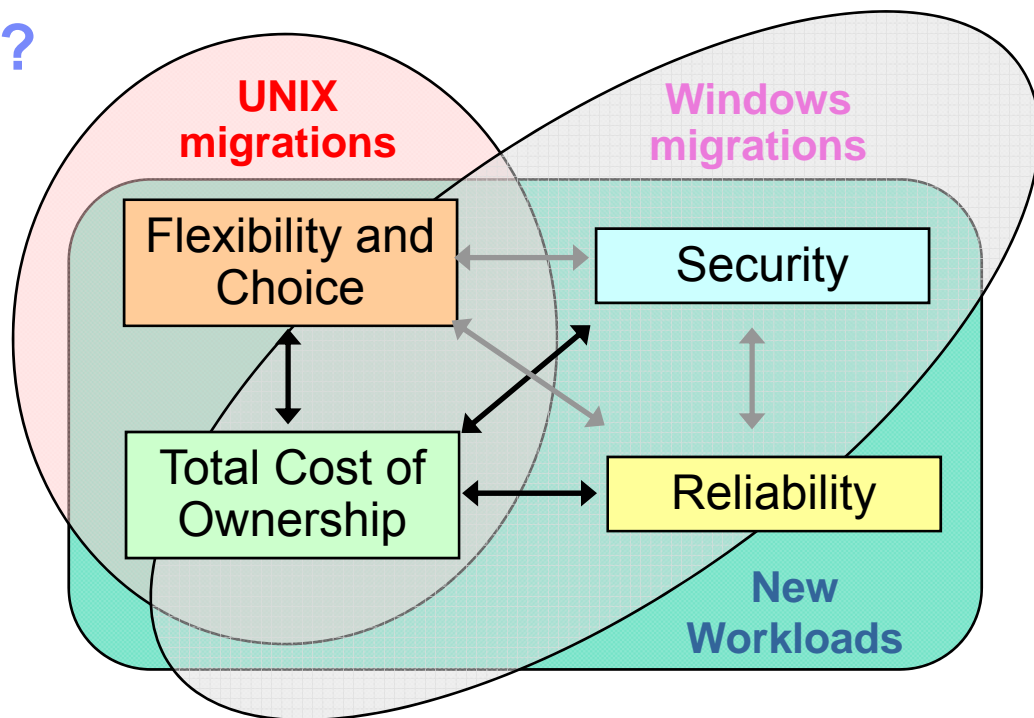
16<sup>th</sup> July, 2008



# What Makes Linux Special ?

## Why Customers adopt Linux today

- Linux offers UNIX customers the flexibility to choose lower cost hardware
- Linux offers Windows customers increased flexibility and enhanced security / reliability
- Linux offers all customers choice for new workloads through open computing, avoiding lock-in to proprietary hardware or software vendors or architectures



## New reasons for adopting Linux

- Linux is Modular**
  - Faster Development Cycle
  - Customization (e.g. Linux Appliances)
  - Specialization (e.g. Real-time, SELinux)
- Linux is Cross Platform**
  - Virtualization, Consolidation, and Cloud
- Linux is Community Developed**
  - Sharing resources for a common goal

## Linux is widely supported, developed, and deployed

Kernel Version	# of Developers	# of Known Companies
2.6.11	483	71
2.6.12	701	90
2.6.13	637	91
2.6.14	625	89
2.6.15	679	96
2.6.16	775	100
2.6.17	784	106
2.6.18	897	121
2.6.19	878	126
2.6.20	728	130
2.6.21	834	132
2.6.22	957	176
2.6.23	991	178
2.6.24	1,057	186
All	3,678	271

Source: Linux Foundation 2008



# IBM actively contributes to Linux

Many of IBM's customers are already familiar with Linux and Open Software; IBM continues to make significant contributions to the Linux world.



- ... has been an active participant since 1999
- ... is one of the leading commercial contributors to Linux
- ... has over 600 full-time developers working on Linux and open source software

## Linux Kernel and Subsystem Development

- Kernel Base Architecture Support
- GNU
- Security
- Systems Management
- RAS
- Virtualization
- Special Projects
- Filesystems
- ... and more

## Expanding the Open Source Ecosystem

- Apache & Apache Projects
- Eclipse
- Mozilla Firefox
- OpenOffice.org
- PHP
- Samba
- ... and more



## Legal Support

- Software Freedom Law Center
- Free Software Foundation (FSF)
- Open Invention Network
- ... and more

## Promoting Open Standards & Community Collaboration

- The Linux Foundation
- Linux Standards Base
- Common Criteria certification
- Open Software Initiative
- ... and more

## Who Contributed to Version 2.6.23 of the Linux Kernel? \*

### Most active 2.6.23 employers By changesets

(Unknown)	1180	19.0%
Red Hat	744	12.0%
(None)	559	9.0%
<b>IBM</b>	<b>507</b>	<b>8.2%</b>
Novell	421	6.8%
Intel	184	3.0%
Oracle	146	2.4%
Renesas Technology	134	2.2%
MIPS Technologies	119	1.9%
NetApp	116	1.9%
(Consultant)	103	1.7%
Google	99	1.6%
NTT	98	1.6%
Sony	93	1.5%
Astaro	93	1.5%
Linux Foundation	82	1.3%
MontaVista	81	1.3%
SGI	77	1.2%
Qumranet	72	1.2%
QLogic	62	1.0%

\* <http://lwn.net/Articles/247582/>



# Linux is *ready for your business*.

It has the attributes that we know (and that CIOs tell us) are essential for the enterprise environment.

**Business Critical systems must be:**

- ✓ Reliable
- ✓ Secure
- ✓ Available
- ✓ Serviceable
- ✓ Predictable
- ✓ Scalable
- ✓ Affordable
- ✓ Flexible (e.g., Cloud, Portability, SOA)
- 
- Additional Benefits
- ✓ "Green"
- ✓ Open

## Application Layer

Data

Application Integration

Systems Management

Collaboration

Software Delivery

## Operating System (Linux)

Virtualization

Determinism

Security

Hardware (x86, RISC, CMOS, Blade, Cluster, Grid, Mainframe)

## Linux for Business-Critical Workloads...

...is *business as usual* for IBM: Linux is certified on all IBM systems, the IBM Middleware portfolio is available on Linux, and IBM delivers on services across the entire lifecycle.

**Over 6,500 ISV Partner Applications including SAP, Siebel, etc.**

Information  
Management

WebSphere®

Tivoli®

Lotus®

Rational®

Linux: Novell, Red Hat, others

Xen, VMware

Real Time Linux

SE-Linux

System x™, Power, System z™, BladeCenter®, Cluster Systems, System Storage, Blue Gene®



# Linux supports a range of Business-Critical Workloads

IBM's solution isn't a part number - it's a family of solutions that encompasses what enterprises around the globe rely on to run their businesses.

## Linux for Business-Critical Workloads

### Vertical Business Applications

Finance  
Government  
Retail  
Manufacturing

### Horizontal Business Applications

ERP / Accounting  
CRM  
SCM  
e-Commerce

### SOA and Integration

- OLTP & SOA Software
- Integration Software
- Business Process Mgt
- Application Servers

### Information on Demand

- OLTP & Database Platforms
- Data Integration
- Bus Intelligence / Data Analysis
- Content Management

### Next Gen Infrastructure

- Virtualization / Consolidation
- Cloud Computing
- Real-time
- MAC Security

### Collaboration

- Email
- Instant Messaging
- Portals
- Web 2.0

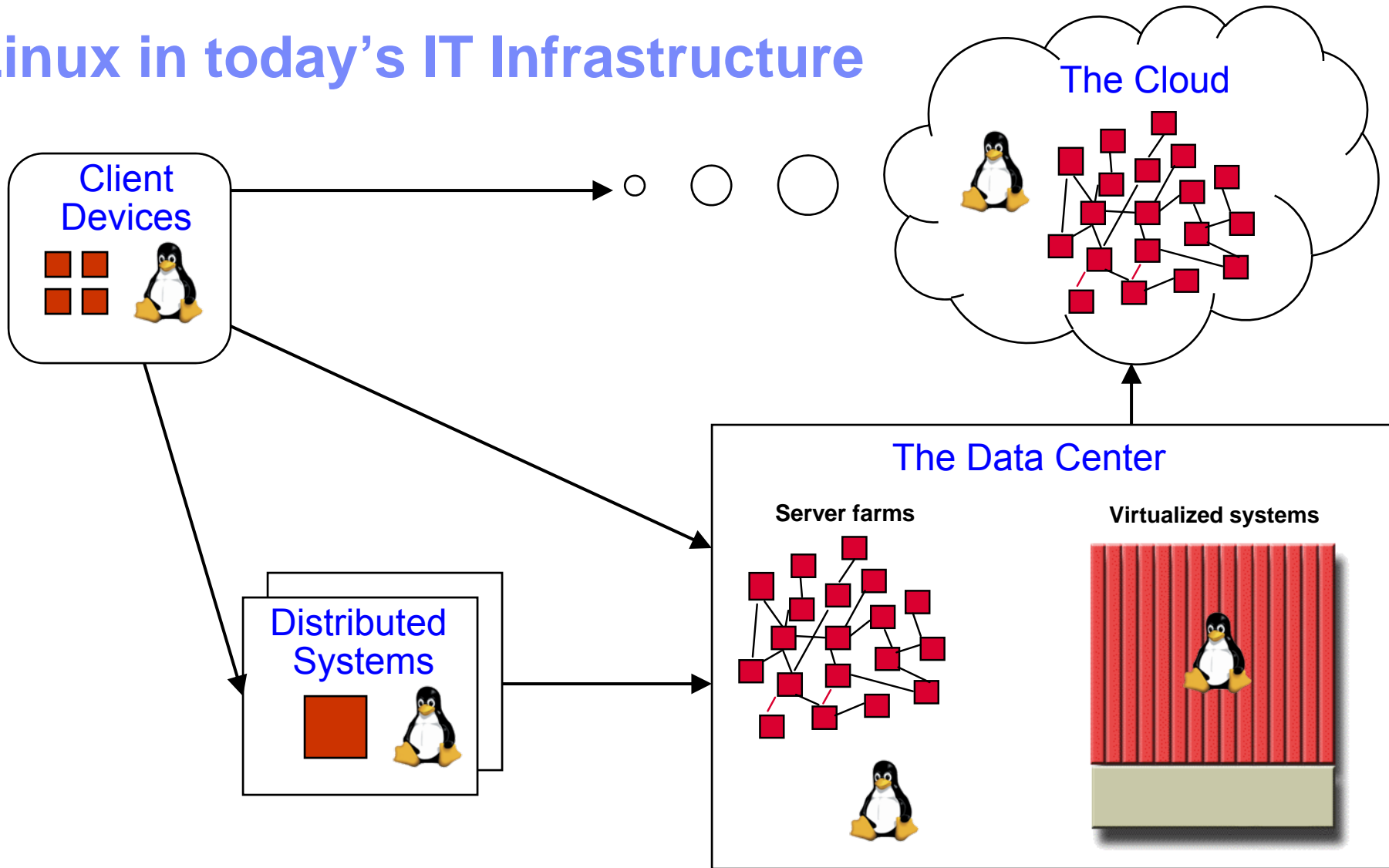
### Software Development

- Modeling and Design
- Application Development
- Change & Release Mgt
- Quality Management

### Systems Management

- Systems & Network Mgt
- Security Software
- Storage Management
- Virtualization Management

# Linux in today's IT Infrastructure



# Linux and Horizontal Business Applications

## Horizontal Business Applications

- ERP / Accounting
- CRM
- SCM
- e-Commerce



## Why Linux ?

- Lower Total Cost of Ownership
- Reliability and Security
- Cross-platform support
- Scalability and Performance
- Integration and Virtualization



## Customer Case Studies

### • [McGregor Industries](#)

*Integrated ERP and supply chain system built on SAP, DB2, Linux, and System x servers*

### • [Halfords](#)

*Multi-channel e-commerce website integrated with ERP system using WebSphere Commerce*



## Key Software and Hardware for Linux

- ERP / Accounting Applications
  - *eg SAP, Sage / ACCPAC*
- CRM / SCM Applications
  - *eg Siebel, SAP, Sage / ACCPAC*
- e-Commerce
  - *WebSphere Commerce - Platform for online e-commerce*
- Database Servers
  - *DB2 9 - Scalable hybrid data server with XML support*
- Application Servers
  - *WebSphere Application Server - Scalable Java EE platform*
- Operating Systems
  - *Novell SUSE Linux Enterprise Server 10*
  - *Red Hat Enterprise Linux 5 Server*
- x86 servers
  - *System x - Advanced x86 servers built on IBM X-Architecture*
  - *iDataPlex - Flexible design for internet scale data centers*
- RISC servers
  - *POWER Systems - High performance scalable servers*
- Blade servers
  - *BladeCenter - Powerful servers using less space and energy*
- Mainframe Servers
  - *System z - Scalability, reliability and green virtualization*



# McGregor Industries



Information Management software



## Challenge

- ▶ Maintain its ability to compete in an increasingly global business, including expansion from manufacturer to include sourcing products from off-shore suppliers
- ▶ Rethink IT infrastructure and realign business processes to support the above

## Solution

- ▶ IBM Express Wholesale Distribution and SAP ERP running on DB2 on Linux on System x servers

## Key Benefits

- ▶ Improved visibility across supply chain and distribution network, helping McGregor meet customer orders in a timely manner.
- ▶ Stable high performance system, out-of-the box functionality, and easy to manage environment

## Business

- ▶ Canada's largest manufacturer and marketer of quality socks

## Why Linux?

- ▶ *“Running Linux, it delivers all the performance we need at much lower cost than most comparable UNIX platforms, and the reliability has been consistently excellent.”*

## Why IBM?

- ▶ DB2 provides excellent performance in the SAP application environment, and new features like Deep Compression offer the ability to reduce storage costs and further improve performance
- ▶ *“Choosing IBM for the hardware, software and services relating to this implementation has been a real blessing”*

# Halfords Group (UK)




## Challenge

- ▶ Boost sales by providing a multi-channel e-commerce solution, integrated with core SAP systems
- ▶ Solution needed to be delivered fast in order to make the most of the Christmas period

## Solution

- ▶ New website built by Salmon (IBM Premier Business Partner) on WebSphere Commerce and running on Linux
- ▶ Core SAP systems linked to new web front-end

## Key Benefits

- ▶ Online sales increased by 250%
- ▶ New functionalities encouraged cross and up-sell, raising average order value by 40%,
- ▶ Integration facilitated multi-channel sales effort

## Business

- ▶ Leading UK auto, leisure and cycling products retailer with 420 stores and 10,000 employees

## Why Linux?

- ▶ Scalability and open standards

## Why IBM?

- ▶ WebSphere Commerce supported best-in-class, mission-critical enterprise applications, and helped Halfords achieve better navigation, minimizing the number of clicks required to get to each product
- ▶ *“The new e-commerce solution had to provide a future-proof online platform for Halfords to embrace multi-channel operations and it had to be done quickly.”*

# Linux and Information on Demand

## Information on Demand

- Database Platforms
- Data Integration
- BI / Data Analysis
- Content Management



## Why Linux ?

- Scalability and Performance
- Integration and Virtualization
- Lower Total Cost of Ownership
- Reliability and Security
- Cross-platform support



## Customer Case Studies

- [Impire AG](#)  
Live-action and 3D graphics sports content for TV delivered on-demand with Informix and BladeCenter
- [Alberta Agriculture](#)  
Weather data extracted from data warehouse and easily presented graphically using DB2 Alphablox



## Key Software and Hardware for Linux

- Database Servers
  - **DB2 9** - Scalable hybrid data server with XML support
  - **Informix Data Server** - High performance OLTP
- Data Integration
  - **Information Server** – Data integration of multiple databases
- Dynamic Data Warehousing and Business Intelligence
  - **Cognos 8 Business Intelligence** - Complete BI range on SOA
  - **InfoSphere Warehouse** - Integrated dynamic data warehousing
- Enterprise Content Management
  - **FileNet** - Combines powerful content management with workflow
- Operating Systems
  - **Novell SUSE Linux Enterprise Server 10**
  - **Red Hat Enterprise Linux 5 Server**
- x86 servers
  - **System x** - Advanced x86 servers built on IBM X-Architecture
  - **iDataPlex** – Flexible design for internet scale data centers
- RISC servers
  - **POWER Systems** - High performance scalable servers
- Blade servers
  - **BladeCenter** - Powerful servers using less space and energy
- Mainframe Servers
  - **System z** - Scalability, reliability and green virtualization

# IMPIRE AG

## Challenge

- ▶ Provide 3D sports graphics and statistics in real time for broadcast during professional sporting events

## Solution

- ▶ High-performance database platforms provide management and mining of data for instantaneous play analysis and statistical content with DB2 Alphablox, DB2 Data Warehouse Edition, Informix Dynamic Server and WebSphere Portal Express running on Linux on IBM BladeCenters

## Key Benefits

- ▶ Improved ability to provide information on demand
- ▶ Higher system availability and reliability
- ▶ Faster and more in-depth analysis with data mining



Information Management software

WebSphere software



## Business

- ▶ German provider of sports graphics and statistics to every major German TV channel

## Why Linux?

- ▶ Horizontal scalability and performance

## Why IBM?

- ▶ Informix Dynamic Server provides a high performance database. DB2 Data Warehouse and DB2 Alphablox then provide complex correlations and analysis
- ▶ *“As a high availability data server that delivers real-time data streaming, IBM IDS enables us to replicate data instantaneously across multiple servers and meets our requirements for live broadcasting of sports replays and analyses”*



# Alberta Agriculture

## Challenge

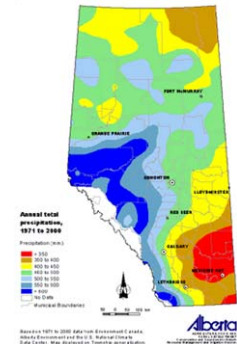
- Information was only available in tabular format, and farmers in Alberta needed the local weather data in a visual format

## Solution

- New analytics solution integrated into open standards-based infrastructure using DB2 Alphablox running on Novell SUSE Linux, easily integrated into Alberta Agriculture's application environment and taking advantage of the organization's existing data warehouse

## Key Benefits

- Lowered TCO by allowing it to leverage existing systems
- Increased staff efficiency in producing reports
- Helped increase comprehension and satisfaction among users by enabling them to view information visually



## Business

- Government ministry for Canadian state, Alberta Agriculture, Food and Rural Development, providing farmers and others with services to help grow the food industry

## Why Linux?

- Easy integration into existing infrastructure

## Why IBM?

- DB2 Alphablox enables raw tabular data to be easily converted into intuitive graphical charts to help end users to make decisions
- “The Alphablox solution has enabled us to keep our existing systems, yet provide much more meaningful weather data analysis to our constituents”*



# Linux and SOA / Integration

## SOA and Integration

- ESBs & Integration SW
- Messaging Software
- Business Process Mgt
- Application Servers



## Why Linux ?

- Integration and Virtualization
- Cross-platform support
- Lower Total Cost of Ownership
- Reliability and Security
- Scalability and Performance



## Customer Case Studies

- [Southside Electric](#)  
*Faster field response by integrating applications and processes with SOA and WebSphere on System i*
- [Servicio Extremeño de Salud](#)  
*Improved healthcare by integrating patient processes with WebSphere on BladeCenters and System p*

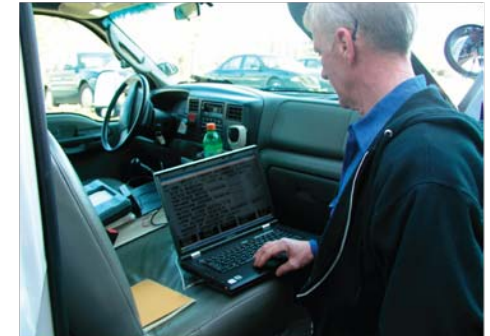


## Key Software and Hardware for Linux

- **Enterprise Service Bus and Integration Software**
  - [WebSphere ESB](#) - Web services and JMS messaging for SOA
  - [WebSphere Message Broker](#) - Universal SOA connectivity
  - [WebSphere BI Server](#) - Business process integration
- **Messaging Software**
  - [WebSphere MQ](#) - Proven messaging backbone for SOA
- **Business Process Management**
  - [WebSphere Process Server](#) - High performance BPM on SOA
- **Application Servers**
  - [WebSphere Application Server](#) - Scalable Java EE platform
- **Operating Systems**
  - [Novell SUSE Linux Enterprise Server 10](#)
  - [Red Hat Enterprise Linux 5 Server](#)
- **x86 servers**
  - [System x](#) - Advanced x86 servers built on IBM X-Architecture
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  - [System z](#) - Scalability, reliability and green virtualization



# Southside Electric Cooperative



## Challenge

- ▶ Provide utility employees with accurate and consistent information, enabling them to dispatch service units more efficiently, and better serve customers

## Solution

- ▶ Information gathered from the field is updated across systems in real time, using SOA technology and Qualcomm satellite mobile data, with WebSphere Message Broker, WebSphere MQ and WebSphere Business Integration Adapter running on Linux on System I servers

## Key Benefits

- ▶ SEC implemented a mobile workforce management system including tracking service orders and entering storm data
- ▶ Projected 67% reduction in turnaround time for service orders and 30% increase in the number of collections completed per day

## Business

- ▶ Electric cooperative in Virginia, providing electrical services to some 53,000 members in southern Virginia

## Why Linux?

- ▶ Platform for new SOA applications running alongside existing applications on System i

## Why IBM?

- ▶ WebSphere Message Broker and SOA technology enabled real-time integration and re-use of existing assets
- ▶ SOA technology from a trusted software provider and an organization that understands the concept of 24x7 availability

# Servicio Extremeño de Salud



WebSphere software

Information Management software



## Challenge

- ▶ Improve quality and delivery of health-care for regional health authority across hospitals, medical care centers and administration
- ▶ Integrate regional facilities to act as one team

## Solution

- ▶ Integrated health care system managing all SES patient records and related business processes, built on SOA architecture using WebSphere Business Integration, SAP and DB2 Content Manager on Linux on BladeCenter HS20s and System p servers

## Key Benefits

- ▶ Up-to-date information available to all facilities, enabling healthcare professions to provide the best possible service to patients
- ▶ Improved administration efficiency and greater financial control

## Business

- ▶ Regional health authority in Extremadura region of Spain, supporting 1 million citizens through 13,000 healthcare professionals

## Why Linux?

- ▶ Deliver an efficient system at the lowest cost to the public purse

## Why IBM?

- ▶ Integration of SAP and applications through WebSphere Business Integration
- ▶ Single point of control for multiple data types with DB2 Content Management
- ▶ *“The key advantage in working with IBM was its ability to provide a complete solution, covering hardware, software and services”*

# Linux and Next Gen Infrastructure

## Next Gen Infrastructure

- Virtualization / Consolidation
- Cloud Computing
- Real-time
- MAC Security



## Why Linux ?

- Integration and Virtualization
- Cross-platform support
- Scalability and Performance
- Lower Total Cost of Ownership
- Reliability and Security



## Customer Case Studies

### • [Nationwide Insurance](#)

Consolidation of server farms onto multiple virtual Linux machines running on System z mainframe

### • [RENFE](#)

Consolidation of independent portals into consistent intranet on virtual Linux on System z mainframe



## Key Software and Hardware for Linux

- Virtualization / Consolidation
  - [z/VM](#) – Virtualization for System z mainframes
  - [Power VM](#) – Virtualization for POWER Systems
  - [VMWare, Xen](#) – Virtualization for x86 systems
- Cloud Computing
  - [Apache Hadoop](#) – Reliable, scalable distributed computing
- Real-time Java
  - [WebSphere Real Time](#) – Real time Java
- Real-time Operating Systems
  - [Red Hat MRG \(including Real Time\)](#)
  - [Novell SUSE Linux Enterprise Real Time](#)
- MAC Security
  - [SELinux](#) – Mandatory Access Control Security
- x86 servers
  - [System x](#) - Advanced x86 servers built on IBM X-Architecture
  - [iDataPlex](#) – Flexible design for internet scale data centers
- RISC servers
  - [POWER Systems](#) - High performance scalable servers
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  - [BladeCenter](#) - Powerful servers using less space and energy
- Mainframe Servers
  - [System z](#) - Scalability, reliability and green virtualization





# Nationwide Insurance



## Challenge

- ▶ Growing server sprawl with over 5,000 distributed servers, 75% of them under 50% utilized
- ▶ High TCO and long server provisioning times

## Solution

- ▶ Java EE applications running on WebSphere and DB2 for Novell SUSE Linux Enterprise Server on System z running z/VM in IFLs

## Key Benefits

- ▶ 450 Linux systems running on two System z9 systems with 70% utilization
- ▶ Server provisioning times reduced from months to days and in many cases to hours
- ▶ Reduced TCO with estimated savings of \$15million over three years
- ▶ 80% reduction in floor space requirements and power consumption

## Business

- ▶ Leading US provider of insurance and financial services, with 36,000 associates

## Why Linux?

- ▶ Virtualization capabilities of Linux
- ▶ Unix skills were easy to turn into Linux skills

## Why IBM?

- ▶ System z provided high availability plus dynamic capabilities to increase or reduce capacity-on-demand.
- ▶ Mature and proven virtualization with low overhead for most workloads
- ▶ System z mainframe Linux support offers a viable solution and lower TCO when viewed from a total solution perspective



# RENFE

## Challenge

- ▶ Lack of consistency of information presentation across 18 business units; high IT administration costs and low scalability

## Solution

- ▶ Single consistent source of corporate information using WebSphere Portal running on SUSE Linux Enterprise Server on the IBM System z platform

## Key Benefits

- ▶ Fast access to information on a unified platform
- ▶ Reduced operational costs through IT consolidation
- ▶ Ability to create new virtualized servers rapidly and easily, without the expense and delay of procuring new hardware




## Business

- ▶ Spanish national railway operator, with 32,000 people, plus track and trains

## Why Linux?

- ▶ Virtualization capabilities of Linux provided the ideal environment for consolidated intranet services

## Why IBM?

- ▶ System z combined high availability and security with virtualized Linux servers
- ▶ *“Both the non-disruptive scalability of the mainframe and the virtualization capabilities of Linux mean that we can make large-scale upgrades without having to waste time, money and efforts hiring and training new personnel and installing new physical servers.”*

# Linux and Systems Management

## Systems Management

- Systems & Network Mgt
- Security Software
- Storage Management
- Virtualization Management



## Why Linux ?

- Integration and Virtualization
- Cross-platform support
- Reliability and Security
- Scalability and Performance
- Lower Total Cost of Ownership

## Customer Case Studies

### • [Techem](#)

High-resilience platform for SAP applications with Tivoli System Automation, Linux and System p

### • [Scana](#)

Improved stability and performance of mission-critical SAP with Tivoli Storage Manager, DB2 and Linux

## Key Software and Hardware for Linux

- Service Management
  - [Tivoli System Automation](#) - High availability and automation
  - [Tivoli Provisioning](#) – Automated provisioning and configuring
- Security Management
  - [Tivoli Access Manager](#) - Protects key applications and files
- Storage Management
  - [Tivoli Storage Manager](#) – Backup and recovery for critical data
- Virtualization and Energy Management
  - [Tivoli Active Energy Manager](#) – Reduction in energy usage
  - [IBM Systems Director](#) - Platform-specific management
- Operating Systems
  - [Novell SUSE Linux Enterprise Server 10](#)
  - [Red Hat Enterprise Linux 5 Server](#)
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# Techem



Tivoli. software



## Challenge

- ▶ Support expansion plans by expanding and integrating business systems rapidly and effectively, securing data and protecting against disaster

## Solution

- ▶ SAP software running on Linux on System p servers using IBM virtualization to share workload efficiently, combined with Tivoli Storage Manager and managed by Tivoli Systems Automation for Multiplatforms

## Key Benefits

- ▶ Simplified operating system environment reduced administration costs, and advanced storage software and hardware provided a highly resilient infrastructure that protects Techem against disaster and is able to scale up to meet the demands of growth

## Business

- ▶ Global specialist in recording and allocating billing data on energy, water and cooling consumption, based in Germany

## Why Linux?

- ▶ Freedom to choose the best platform
- ▶ Ability to take advantage of virtualization

## Why IBM?

- ▶ Daily incremental backups of data from SAP with Tivoli Storage Manager
- ▶ *“The IBM System p5 servers running SUSE Linux Enterprise Server and SAP software allow us to reduce operational expenses, integrate new companies into the group rapidly and efficiently, and manage a dynamically growing environment easily and cost-effectively”*

# Scana Offshore Vestby AS



Tivoli. software

Information Management software

## Challenge

- ▶ Poor stability of business-critical SAP R/3 production environment due to hardware errors and system-reboot problems
- ▶ Need to improve performance of SAP systems and affordability of computing

## Solution

- ▶ SAP environment re-implemented on DB2 for Linux on x86\_64 on IBM BladeCenter HS20s, with Tivoli Storage Manager for backup and recovery

## Key Benefits

- ▶ Increased platform stability
- ▶ Significant cost savings
- ▶ Simplified administrative tasks
- ▶ Streamlined access to data and near-instant backup and recovery services



## Business

- ▶ Industrial company in Norway, producing components for offshore equipment and machinery for auto manufacturers

## Why Linux?

- ▶ Secure and reliable operating environment

## Why IBM?

- ▶ DB2 simplified administrative work and increased the overall database stability
- ▶ Tivoli Storage Manager maintains efficient backup through direct interface to SAP / DB2
- ▶ *"We expect to significantly reduce the maintenance costs for our SAP system in a short time frame, thanks to performance improvements made by implementing IBM hardware and software solutions"*



# Linux and Collaboration

## Collaboration

- Email
- Instant Messaging
- Portals
- Web 2.0



## Why Linux ?

- Reliability and Security
- Scalability and Performance
- Lower Total Cost of Ownership
- Integration and Virtualization
- Cross-platform support



## Customer Case Studies

### • [Gilbert Public Schools](#)

*Reliable and scalable email and collaboration platform for staff built on Lotus Domino on System i*

### • [IBM Office of the CIO](#)

*Cost-effective delivery of global collaboration tools using Lotus Notes on Linux, Windows and Mac*



## Key Software and Hardware for Linux

- Office Productivity Applications
  - [Lotus Symphony](#), [OpenOffice.org](#)
- Email and Collaboration
  - [Lotus Notes / Domino](#) - Scalable e-mail and collaboration
- Instant Messaging
  - [Lotus Sametime](#) - Secure enterprise instant messaging
- Portals
  - [WebSphere Portal](#) - B2E, B2B and B2C portal software
- Web 2.0
  - [Lotus Connections](#) – Blogs, wikis and social software
- Operating Systems
  - [Novell SUSE Linux Enterprise Server / Desktop 10](#)
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# Gilbert Public Schools

## Challenge

- Large and rapidly growing school district needed a scalable, reliable messaging infrastructure to support communications among staff in all its schools as well as cost-effective flexibility for future expansion

## Solution

- Lotus Notes, Lotus Domino, Lotus Symphony and WebSphere Development Studio software running on Novell SUSE Linux on an IBM AS/400

## Key Benefits

- Stable, highly available system performance
- Flexibility to serve all users in a mixed environment and adapt as new needs arise
- Superior technical support and system management capabilities allowing a single person to manage the messaging infrastructure for 52 schools



## Business

- Fast-growing school district in Arizona, USA with focus on quality of education and providing the best technology

## Why Linux?

- Flexibility and choice of operating system
- Performance in conjunction with Lotus

## Why IBM?

- IBM offers a stable messaging and collaboration platform
- "The security-rich environment offered by Lotus Notes and Domino helps me feel comfortable that I won't face any outside threats I can't handle"*

# IBM Office of the CIO



## Challenge

- ▶ Cost-effectively deliver global communication and collaboration tools in a secure and heterogeneous environment to a broad array of 450,000 IBM end users

## Solution

- ▶ Lotus Notes, Lotus Domino, Lotus Symphony and Lotus Sametime software running on Microsoft Windows, Linux and Macintosh operating systems

## Key Benefits

- ▶ Integrated communication, collaboration, instant messaging and business productivity tools help users connect efficiently, simplify workloads, save time and increase productivity
- ▶ A platform for over- and under-provisioned users with a single client programming model offered through IBM Lotus Expeditor software helps reduce costs and provides an alternative to Microsoft software

## Business

- ▶ 450,000 end users in 64 countries across 2,041 location

## Why Linux?

- ▶ Reliable and secure open desktop platform

## Why IBM?

- ▶ Open standards approach to document formats
- ▶ *“The Lotus portfolio provides an open, powerful desktop platform, with differentiated collaboration and communication capabilities that support role-based execution of business processes in a global, heterogeneous environment”*

# Linux and Software Delivery

## Software Delivery

- Modelling and Design
- Application Development
- Change & Release Mgt
- Quality Management



## Why Linux ?

- Integration and Virtualization
- Cross-platform support
- Lower Total Cost of Ownership
- Reliability and Security
- Scalability and Performance

## Customer Case Studies

- [Florida Department of Health](#)  
*Rapid crisis response and flexible long-term projects with RUP and Rational tools on Linux*
- [Hoplion Infotainment](#)  
*Massively multiplayer online gaming hosted in one universe with DB2, Rational and Linux on System z*

## Key Software and Hardware for Linux

- Modelling and Design
  - [Rational RequisitePro](#) - Team requirements management
  - [Rational Rose](#) - Integrated visual modelling design tools
- Application Development
  - [Rational Application Developer](#) - Visual software construction
  - [Jazz / Rational Team Concert](#) – Team-based development
- Change and Release Management
  - [Rational ClearQuest](#) - Software change management
- Quality Management
  - [Rational Purify](#) - Runtime tools to detect programming issues
- Operating Systems
  - [Novell SUSE Linux Enterprise Server / Desktop 10](#)
  - [Red Hat Enterprise Linux 5 Server / Desktop](#)
- x86 servers
  - [System x](#) - Advanced x86 servers built on IBM X-Architecture
  - [iDataPlex](#) – Flexible design for internet scale data centers
- RISC servers
  - [POWER Systems](#) - High performance scalable servers
- Blade servers
  - [BladeCenter](#) - Powerful servers using less space and energy
- Mainframe Servers
  - [System z](#) - Scalability, reliability and green virtualization

# Hoplon Infotainment

Information Management software

Rational software

## Challenge

- ▶ To offer a robust, streamlined, open standards-based deployment platform for a new online game.
- ▶ Integrate multiple “shards” so that all users are playing in the same game universe

## Solution

- ▶ The Linux- and IBM DB2-based TaikoDom game is hosted by IBM on an IBM zSeries 900.

## Key Benefits

- ▶ Hoplon’s game platform places all users in a single shard and the same game universe
- ▶ IBM DB2 delivered a 30 percent performance increase over the earlier Oracle database system.
- ▶ IBM Rational Purify enabled programmers to quickly fix issues with game code, including a memory leak that was hurting game performance and causing server shutdowns



## Business

- ▶ Provider of massive multiplayer online games, based in Brazil

## Why Linux?

- ▶ Flexibility and ability to run on a mainframe with multiple virtual machines

## Why IBM?

- ▶ Scalability, security, reliability and high availability of System z mainframe
- ▶ *“We wanted to create a game deployment platform that was much more scalable and flexible than existing models, and it was clear that IBM’s approach would allow us to do that in a way we had not considered before...a way that is new to the industry”*



# Business-Critical Workloads on Linux with IBM

Extensive Choices on the Industry's Most Efficient Platforms



Why Linux on IBM for  
Business-Critical Workloads?

## Fact: Linux is certified on all IBM Systems

- ✓ IBM Systems are designed for multiple operating systems, with robust capabilities delivered at the hardware level
- ✓ The LTC strives for performance parity between Linux and IBM's own operating systems

## Fact: Over 500 IBM Software products are enabled for Linux

- ✓ IBM's extensive portfolio of software is ready for Linux, including many more applications from Business Partners

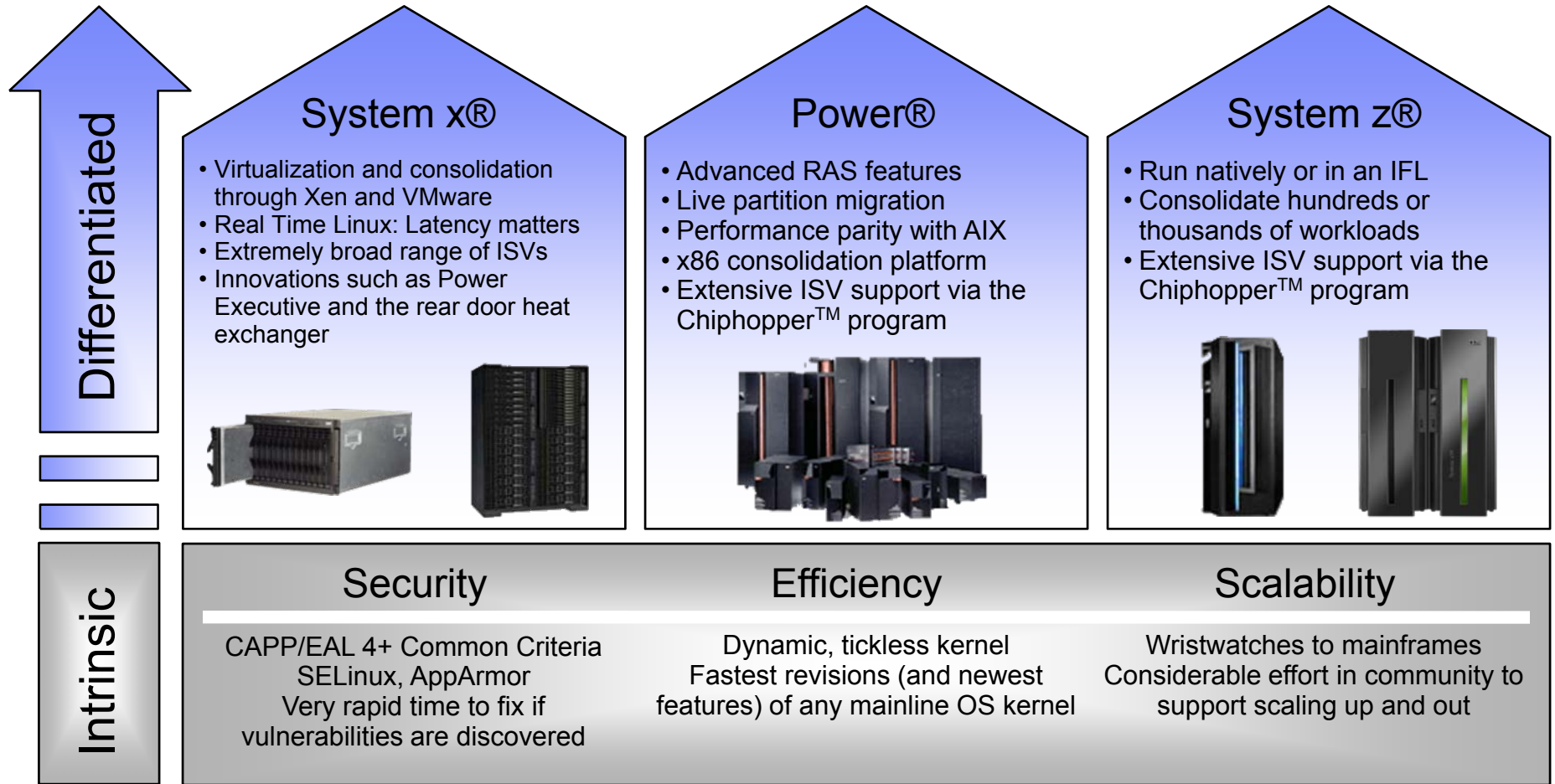
## Fact: IBM delivers on services for Linux

- ✓ IBM Global Services is positioned to deliver extensive services across the full product lifecycle for customers who choose Linux
- ✓ Implementation Services can help ensure a smooth transition



# Linux for Business-Critical Workloads on IBM Systems

Leveraging the common strengths of Linux, while addressing different needs with support for differentiated capabilities across platforms



# Next Generation Linux

