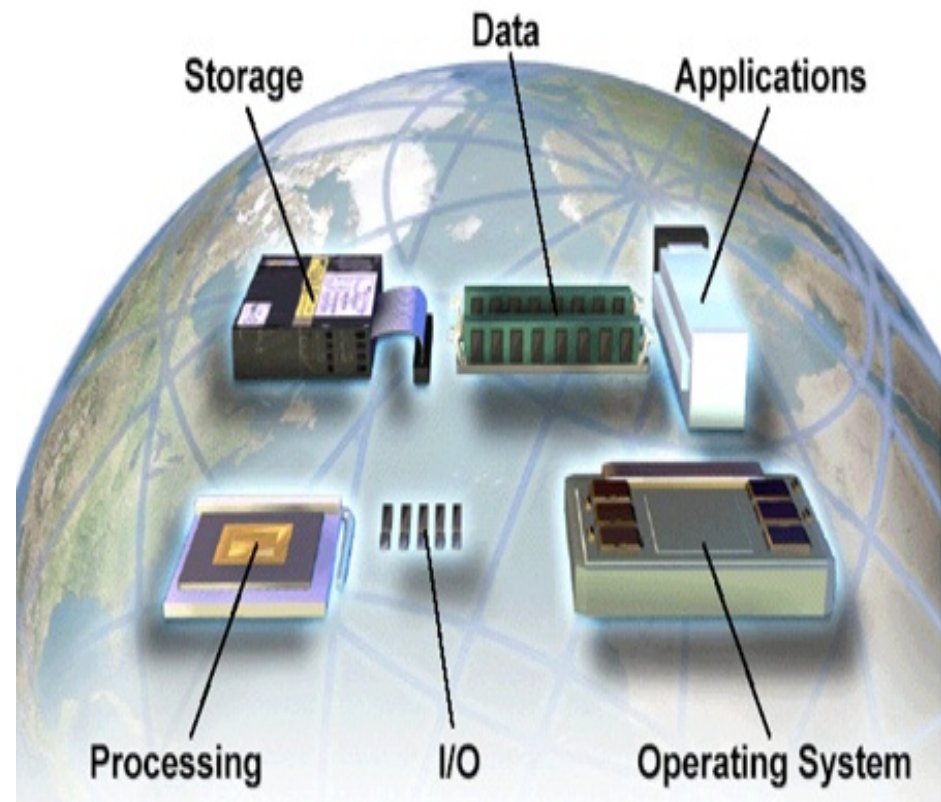




Innovativa lösningar på affärskritiska applikationer med Linux och Open Source



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IBM Systems & Technology Group

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AGENDA

- Vilka möjligheter ser vi att Open Source och Linux skapar
- Exempel på där man uppnått ett reducerad komplexitet med ökad tillgänglighet och säkerhet
- Strategier för interoperabilitet och integration med proprietära lösningar

IBM's Contribution to Linux

350+ developers worldwide

70+ active projects

Significant contributions to 2.4, 2.5 and the latest 2.6 kernel:

Scalability	Cluster Management
Scheduler	System Management
Security	Network security
Serviceability	Networking
Internationalization	POSIX Threading
Journalized Filesystem	Reliability

Trusted, valued members of the Linux Community

Linux Standards Base	Open Source Development Lab
Free Standards Group	Linux ATM Project
Linux	Linux Token Ring Project
Internationalization	USAGI (IPV6) Project
Linux Test Project	GNOME Foundation
	KDE League



Öppen, standardsbaserad utveckling av tillämpningar



- **Gemensam utveckling av tillämpningar**

```
int from;
int free;
...
signed int num, count;
if (!table[i])
break;
...
printk("max");
else {
p = find_gap(&table, from, num);
if (p == NULL)
return;
table[i].name = name;
table[i].from = from;
table[i].num = num;
table[i].next = p->next;
}
return;
```



- **z-Series**



- **i-Series**



- **p-Series**



- **x-Series**



- **Embedded Appliances**



EBI Lock 950 R4

BOMBARDIER

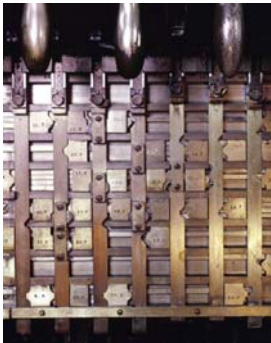
What is interlocking

Interlocking

Interlocking is a method of preventing undesired states in a state machine, which in a general sense can include any electrical, electronic, or mechanical device or system.

Interlocking

In railway signaling, an interlocking is an arrangement of signal apparatus that prevents conflicting movements through an arrangement of tracks such as junctions or crossings. The signaling appliances and tracks are sometimes collectively referred to as an interlocking plant. An interlocking is designed so that it is impossible to give clear signals to trains unless the route to be used is proved to be safe.



Mechanical Interlocking
Constructed with steel bars
forming a grid



Relay interlocking
Constructed with complex
circuitry made up of relays



A model board and
lever machine

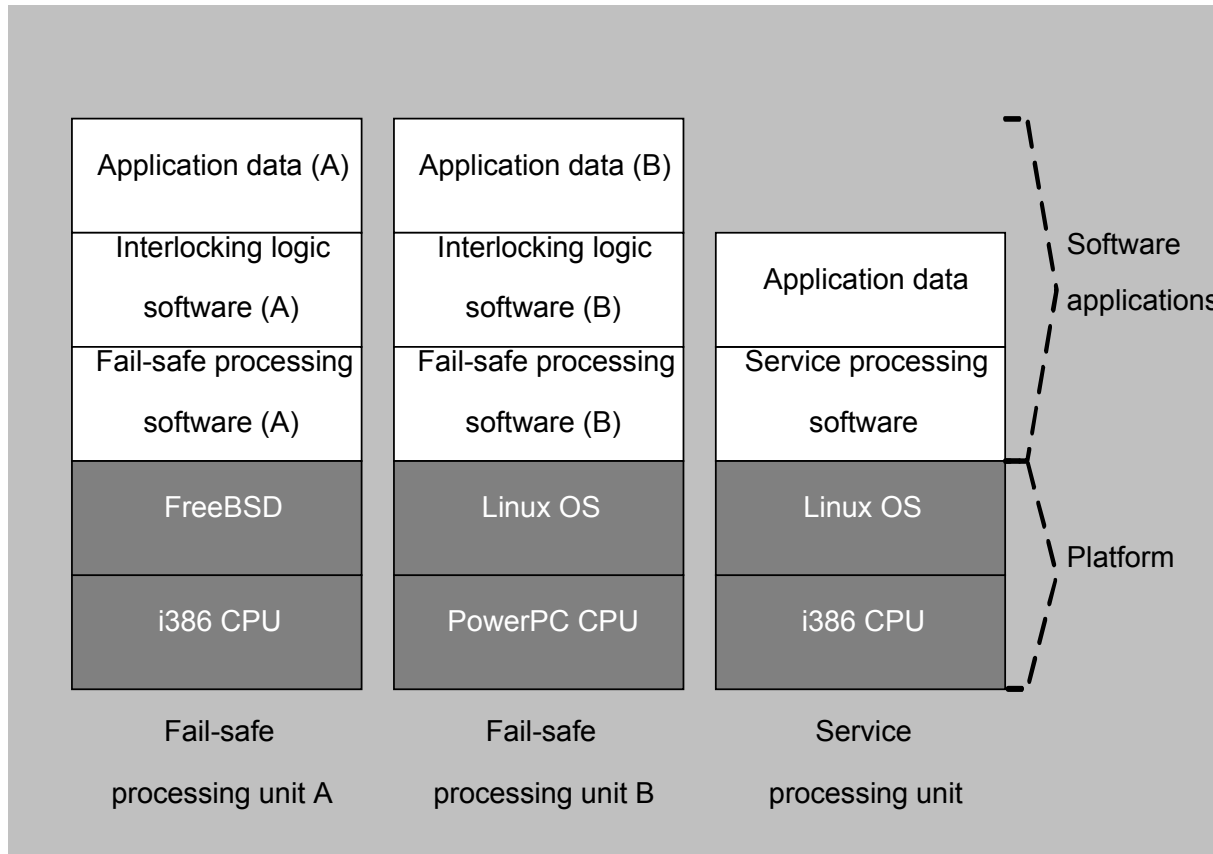
Electronic interlocking - Bombardier EBI Lock

Complex wired networks of relays are replaced by software logic running on special-purpose fail-safe control hardware. The fact that the logic is implemented by software rather than hard-wired circuitry greatly facilitates the ability to make modifications when needed by reprogramming rather than rewiring.

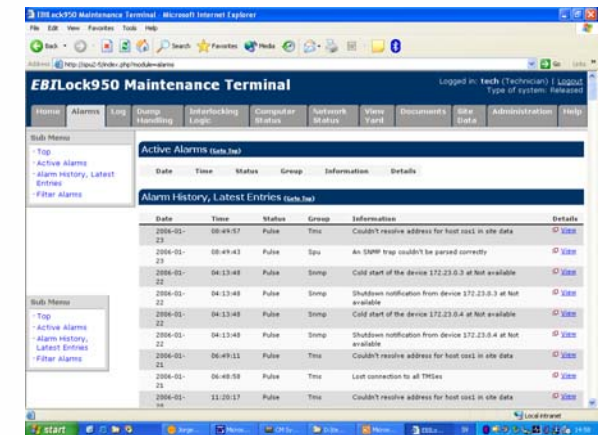
By whatever means of technology are used, interlockings are designed to ensure that no operation can be performed unless all prerequisites have been satisfied.



System struktur och softvara

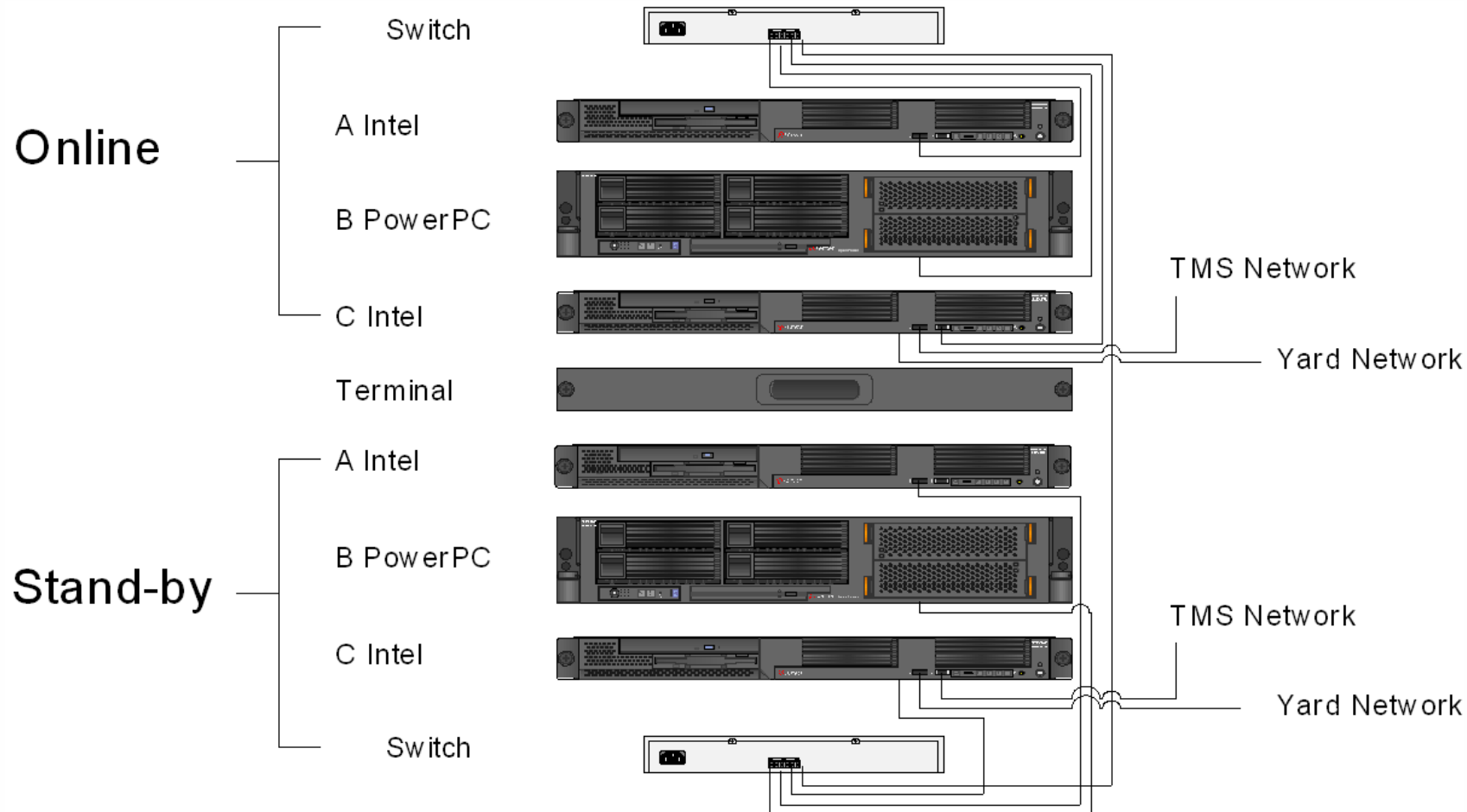


- GNU Compiler och tools används för att skapa en crossplattform compiler
- WEB Baserad softvara



Systemkoncept / fysisk arkitektur

- Fysiskt oberoende mellan de olika CPU-erna.
- Kommunikationen mellan CPU-erna sker via Ethernet / TCP/IP.



Första anläggningarna med *EB/Lock950 R4*

- Skandiahammen Göteborg 30 objekt Q3 2006.
- Italien Milan Junction 764 objekt Q4 2006.
- Göteborg C / Olskroken 1200 objekt 2008.

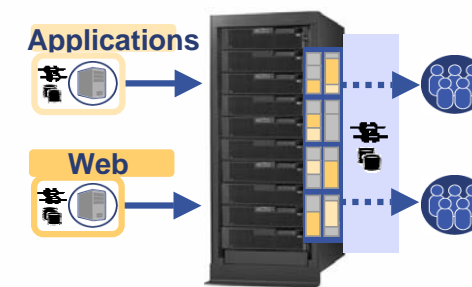
IBM's "Big Green Linux" Initiative

Utilize Linux to reduce energy consumptions by datacenters through consolidation, load balancing and more efficient resources management

- Internal IBM is consolidating approximately 3,900 internal servers onto about 30 System z mainframes running Linux.
- Virtualization for System p and System z enable the most efficient consolidation in the industry.
 - ▶ pAVE : running x86 Linux applications on Power
 - ▶ Chiphopper: migrating applications from x86 to Linux on other platforms
- Information Server Blade: data virtualization in grid computing
- Active partnership with the Linux Foundation's "Green Linux" initiative and community driven technical solutions to power efficiency.
 - ▶ scaling CPU clock speed and voltage
 - ▶ keeping idle CPUs in a 'tickless,' low-power state longer



TODAY: Customers Consolidating x86 and Unix Workloads to Linux on POWER



U
N
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X

Volkswagen

- Consolidated 76 Sun servers to only 6 p5-570 servers
- IBM System Storage, WebSphere and Tivoli
- Apps: business-to-business (B2B), engineering-to-engineering (E2E) and post-sale systems

"The move to System p has enabled us to be more responsive to customer needs in the fluctuating automobile market,"

- Wolfgang Petersen, IT Services, Volkswagen AG



Telefonica Moviles España

- Genesys GPP - consolidating 11 HP x86 servers to 7 LPARs
- BMC Patrol - 2 x86 servers to 2 LPARs with System p AVE
- Reference architecture for new services on 6 p5-595 servers
- Potential for consolidating hundreds of additional servers

" Consolidating our workloads on Linux on POWER...is helping us to significantly lower operational costs, reducing dramatically the IT complexity."

- Miguel Angel García Hafner, technology manager
Telefonica Moviles España



X
8
6

Next-Generation Game Consoles...



Sony PlayStation 3

3.2 GHz Cell Broadband Engine

Microsoft Xbox 360

3.2 GHz Custom Power Architecture

Nintendo Wii

Custom Extension of Power Architecture

Communications Networks...

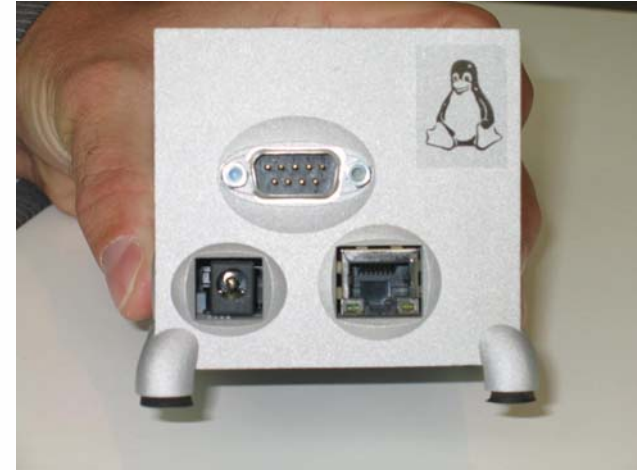


Why Linux

1. Linux platform allowed us to build advanced systems solution for reasonable cost
2. Linux platform proved to be easily scalable and secure
3. Linux supported the required high availability requirements, with great support on different technologies

Just for fun.....

IBM PPC405EP
running Linux



**Linux and Open Source
is BIG business ...**

Thank's for listening

