

# Operating System Overview

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- ◆ IBM's flavour of UNIX -> AIX 5L v5.2
- ◆ Batch Subsystem -> LoadLeveler v3.1
- ◆ File Systems -> JFS, GPFS
- ◆ Development Environment -> C, C++, XL Fortran, TotalView.

# AIX 5L v5.2

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From a user's point of view, it's Unix (ahem...). You will find some differences in arguments to standard commands (ls, df,...)

From a developer's point of view, it's Unix with some differences (for example, there are a few signals that have different names).

From a system administrator's point of view, it's another world!... :-)

Features in v5.2 worth mentioning:

- Linux Affinity (that's what the L in 5L stands for). This comes as the AIX Toolbox for Linux Application which includes many popular open source programs (emacs, less, samba, bash...)
- Dynamic Logical Partitioning.

Find all about AIX at <http://www.ibm.com/servers/aix>

For developers this is the bible: AIX 5L Porting Guide

at <http://www.redbooks.ibm.com/redbooks/SG246034.html>

# Batch Subsystem

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- ◆ Totally different command set and arguments. For example, `llsubmit` -> `qsub`, `llq` -> `qstat`, `llstatus` != `qstat`, etc...
- ◆ Manages serial and parallel jobs.
- ◆ Supports checkpoint/restart.
- ◆ LoadLeveler does not enforce limits. Another product called WorkLoad Manager does. LoadLeveler can use WLM.
- ◆ Gang scheduling exists, but we need to figure out if it is the same as on SuperUX.
- ◆ Running jobs can be preempted using `llpreempt`. Preemption can happen automatically based on job classes.

# File Systems

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## JFS (Journal File System):

- ◆ Journal based file system (like SGI's XFS or HP's VxFS). The main benefit of a journal file system is fast recovery after a crash.

## GPFS (General Parallel File System):

- Cluster file system. Is also a journal based file system. NEC's GFS or SGI's CXFS are other examples of cluster file systems.
- Allows concurrent reads/writes to a single file system from any nodes in a cluster.
- IBM says it has a lot of high availability features.
- Implements striping at the file system level. Does parallel i/o even for single-threaded programs.

# Development Environment

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C, C++, dbx, usual unix tools and library calls (printf :-))...

XL Fortran:

- Fortran 95 with partial support for the Fortran 200 draft.
- OpenMP
- POSIX threads
- I have no idea what XL stands for...

Etnus TotalView

- C, C++ and Fortran support
- OpenMP and MPI debugging support
- Interesting feature: MPI Message Queue Graph which visualizes interprocess communication.