



10 Years of Scientific Linux

HEPiX Spring 2014, LAPP, Annecy

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The Initial Problem - 1

- Once upon a time there was UNIX, or rather there were UNIXes, many of them –
 - SunOS
 - HP-UX
 - Apollo Domain
 - IBM AIX
 - Digital Ultrix
 - Und so weiter

The Initial Problem - 2

- Supporting them all, and CERN did, was labour-intensive.
- Could the emerging Linux save effort?
- Should we only consider CERN or should we try to converge HEP-wide?
- Does the emerging Grid need convergence on the O/S?
- Can we chose one distribution HEP-wide (or even CERN-wide)?

The Choices

- Gnu/Linux
 - Debian
 - Suse
 - Redhat Enterprise
 - Ubuntu (very new at that time)
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- Different labs ran different flavours; some labs ran multiple flavours! But there seemed to be more running Redhat than the others combined

Redhat goes commercial

- In early 2003, Redhat announced that their Linux was going commercial – access to the binaries and all support would be charged on a per-CPU basis.
- Access to source had to remain open and free.
- The US DoE made a deal for \$55 per node
- SLAC negotiated a better deal at \$25 per node
- CERN (a certain AGS) started negotiations to get the SLAC deal but HEP-wide.
- Fermilab also started discussions with Redhat

Redhat miss the boat

- Redhat attended the Fall 2003 HEPiX to listen to our concerns but little progress was made
- It took them 6 months to formalise an offer to CERN that resembled that for SLAC but they agreed to extend it HEP-wide
- Fermilab gave up on negotiations sometime in late 2003 or early 2004 (my interpretation of events)
- At the Spring 2004 HEPiX in Edinburgh, Redhat announced the HEP-wide offer

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too late ...

The Birth of Scientific Linux

- ... because Troy Dawson and Connie Sieh at Fermilab had a better idea –
- Pick up sources from Redhat, add common HEP applications and build - **and support** - a distribution suitable for Fermilab users
- Jan Iven and Jarek Polok at CERN had a similar idea for CERN users
- Both teams had informal discussions on common parts and site customisation options
- Both labs are more or less forced to use Redhat's commercial offering for servers, especially Oracle servers

Spring 2004 HEPiX at Edinburgh

- Connie presented Scientific Linux based on Redhat sources plus support for local modules such as AFS and with tools allowing for site-specific tailoring. She invited other sites to join
- Jarek Polok then gave a remarkable similar talk on behalf of the CERN Linux team
- An alarm bell went off in my brain – two independent teams possibly duplicating each other's work, exactly what HEPiX was created to avoid
- Les Robertson, deputy head of IT at CERN and head of the LCG grid project, encouraged me to see what could be done

SL goes HEP-wide

- By Wednesday, Mark Kaletka of Fermilab and Jan Iven of CERN had agreed that their respective Linux teams should work in parallel according to an agreed set of guidelines for SL
- The agreement is actually entitled “Proposal for LCG and/or EGEE to standardize on SL as the base Linux platform”.
- Some points:-
 - Common packages before site customisation should be compatible with Redhat binaries
 - Physics applications and middleware should be able to use at least one distribution of SL and Redhat binaries interchangeably
 - LCG packages should avoid add-on or customised packages such that they can run on any SL-based distribution

CERN and HEP adopt SL

- Despite my pleas, Jan insisted, and CERN still does, on building a local CERN distribution because of the need for local patching, in particular because of the CERN configuration of AFS – hence the ongoing need for SLC
- But all HEP users should find compatibility in using either version

The Future

- HEP, and many others, has been using SL successfully for 10 years
- Fermilab appear to be prepared to continue making it available and supported
- Redhat have struck a new deal with CentOS, not all details of which are totally clear
- What are the advantages of switching? What are the possible risks?

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- What are the advantages of switching? What are the possible risks?
- If it ain't broke why fix it?

A good suggestion

From Larry Pezzaglia of NERSC

instead of expressing a preference for one of the options presented, I'd prefer to recommend that the SL developers take whatever actions they deem appropriate while keeping in mind our desire for the features present above.

