History OF Fermi UNIX Environment

- Fermi UNIX Environment or FUE is primarily an internal Computing Division group, allowing the various departments to work together in providing UNIX computing services.
- FUE initially was an outgrowth of the 1990 UNIX work station SEED project.
- The goal was to provide a common environment for the 4 different work station architectures.
- Helped to gather together much of the UNIX support work that was being done at the time into more of a coherent whole. This included, ups, upd, system management practices, etc.
- Resulted in further development of products that were needed to fill in the gap -- namely the login scripts, now known as the Fermi files.
- FUE has met weekly or bi-weekly for 4 1/2 years. There is not a formal organization structure, but certain people have volunteered to manage the administrative details.
- Meetings are divided into two sections. Part A consists of regular status items (product status, OS issues, etc.). Part B consists of discussions of proposals, policies, difficult problems, etc.
- UPS design is done independently, but reports back to FUE.

Major Accomplishments of FUE

- Creation of UNIX KITS distribution area.
- Development of process for distributing proprietary products.
- Definition and development of common login environment.
- Development of certification process for new Operating System and/or Compiler releases (DR0004).
- Ongoing design and development of UPS family (ups, upd, upp, upc).
- Access to UNIX KITS area via anonymous ftp.
- Recommendations on UNIX code management.
- Coordination of multiple shell support.
- Provision of FUE and UPS Design Meeting minutes on WWW. (http://www-oss.fnal.gov:8000/fue/)
- Development of Fermi UNIX Conformance Definitions (DR0009).
- Note: Much of the above work was handled by the individual departments/groups. However, FUE has been effective in coordinating the process, allowing different groups to provide input, etc.

FUE Conformance Levels

- DR0009 was finally completed this month and is probably not in the Division Library yet. It is an attempt to define what is meant by a FUE-compliant system.
- Defining FUE-compliant has benefits for both the end-user and service providers. End-users can determine what is necessary for certain products to work. Service providers can make assumptions on the existence of certain products.
- DR0009 defines several levels of Compliance:
  - None
  - Minimal
  - core FUE
  - full FUE
  - FUE plus
- A system may fall into the *None* category for several reasons:
  - Not on the list of supported Computing Division platforms.
  - Not running a certified release of the OS or compilers.
  - Not appropriate local system management support.

FUE Conformance Levels - Continued

- The *Minimal* category, meets all the tests described under None, but has no FUE software installed.
- The various FUE conformance levels will be discussed in more detail later.
- In addition to the FUE conformance levels, there are Language Support Environments
  - FORTRAN
  - C
  - GNU C
- The Language Support Environments specify the need for compilers, run time environments, or GNU products (provided by the UNIX Application Support Group). These requirements are specified on a per product basis.
- Individual products may have additional requirements beyond these conformance levels. These may be handled via UPS dependent products, notifications in the INSTALL_NOTE, product documentation, etc.

Core FUE

- Core FUE provides the bare minimum -- enough for the user to use setup and the rest of ups. It was designed to allow off-site collaborating institutions to use products in UPS format. Root access is not required to install core FUE.
- In requires the following products:
  - ups
  - funkern
- The funkern product contains everything needed to support the basics of ups and other ups products. It has been re-organized in v5_0 (not yet released) to accomplish this. Prior to v5_0, some of the important pieces where contained in futil and systools. Funkern v5_0 contains:
  - dropit, addpath/delpath - used in products setup and unsetup scripts
  - setpath.csh/setpath.sh and setups.csh/setups.sh - part of the Fermi files that setup a valid path and the ups environment. These are called from the Fermi files, but may be sourced directly from the user's dot files.
  - funame & log*/grp* commands - used by setpath and setups

Full FUE

- Full FUE provides the base FUE environment. On-site systems are encourages to comply to at least this level.
- In addition to core FUE, full FUE requires the following products:
  - upd - provides product distribution capabilities
  - systools - provides rest of Fermi files and system administration tools
  - futil - provides many useful tools (flpr, a2ps, gzip, etc.)
  - shells - provides tcsh, bash, perl, and gawk
- It also requires that that Fermi files that were installed as part of funkern, as well as those files that are part of systools, are installed in /usr/local/etc. In addition, csh and ksh as provided by the Operating System vendor must be installed.
- New releases of systools and futil (v5_0) are required to reflect those items that were moved to the funkern product.

FUE plus

- FUE plus provides additional products that may be important for Computing Division support. On-site systems are encouraged to comply to this level.
- In addition to full FUE, FUE plus requires the following products:
  - www - provides Web browsers
  - ghostview - dependent product of www
  - ximagetools - dependent product of www
  - fmh - supported mail reader
- It also requires that the X11 and Motif releases from the Operating System vendor have been installed.