Linux Development Process

Timothy D. Witham
Chief Technology Officer
Open Source Development Labs, Inc.

HP WORLD 2004
Solutions and Technology Conference & Expo

Agenda

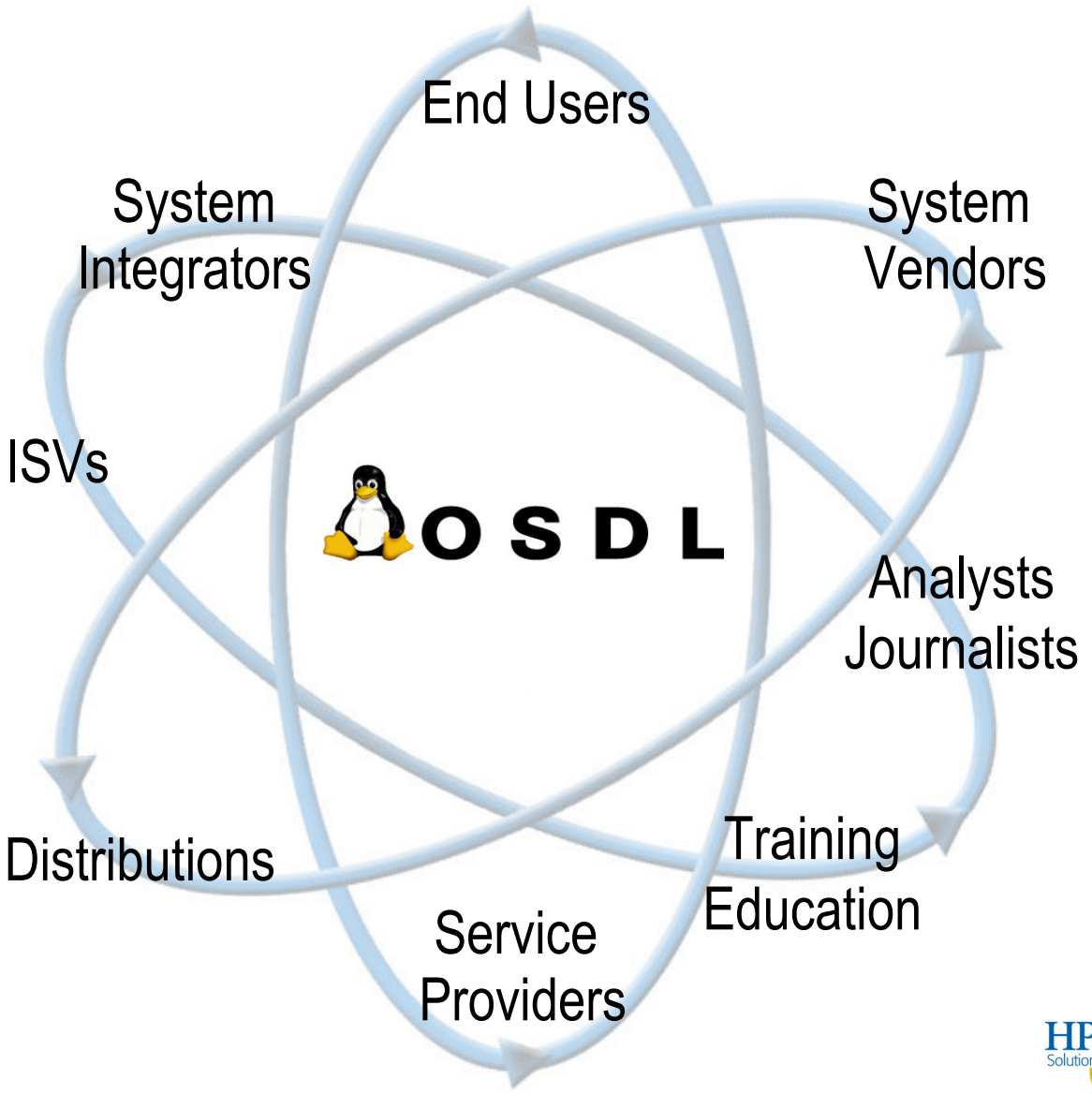
- Introductions
- What is Linux?
- Linux Kernel development process
- Getting Involved

Who we are

OSDL Mission

To be the recognized center-of-gravity for the Linux industry; a central body dedicated to accelerating the use of Linux for enterprise computing

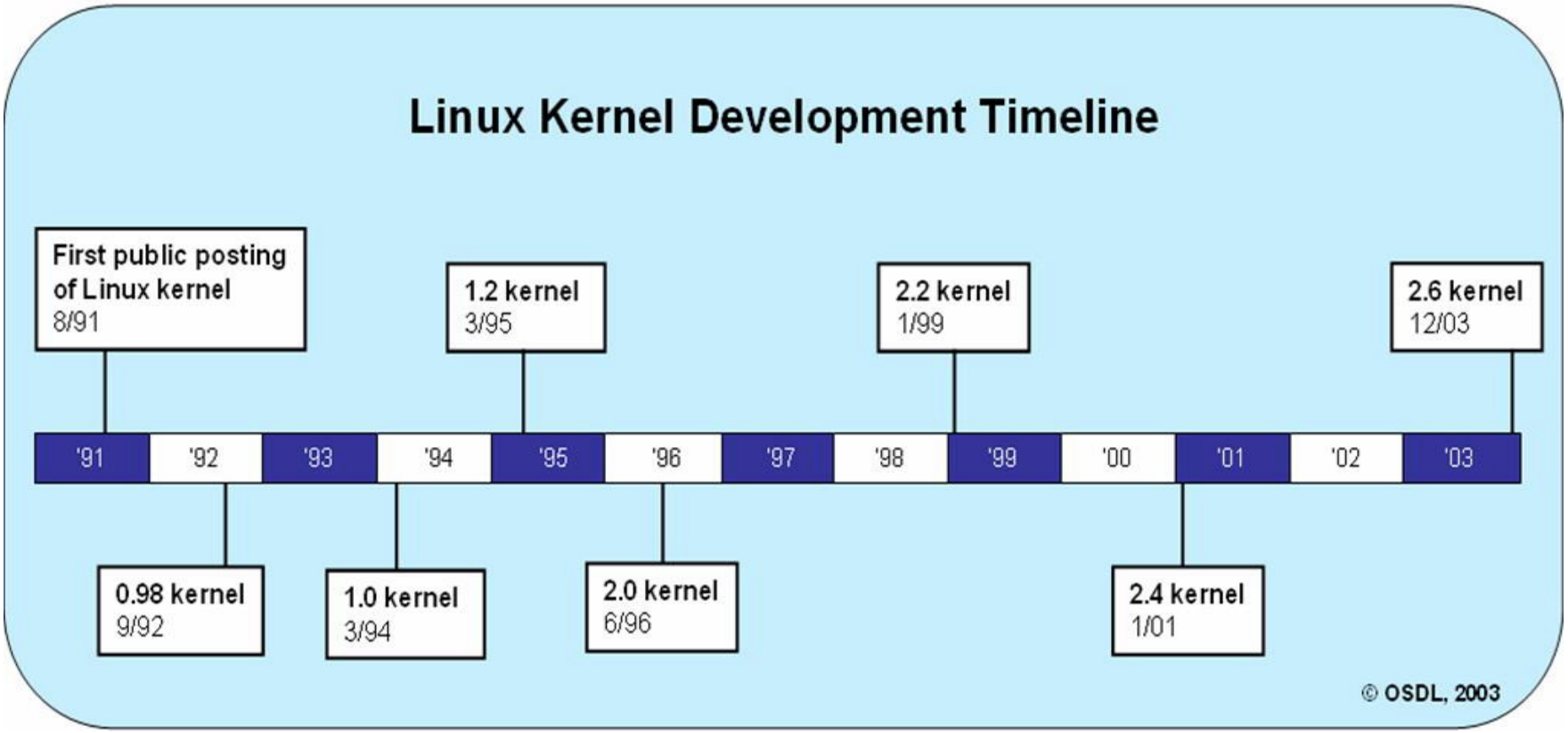
OSDL – Linux Center of Gravity



Definition of Linux

- What is Linux
  - Kernel – Heart of the operating system
    - Tools – Utilities – Graphics
  - Applications
    - User
      - Open Office
      - Gimp
      - Mozilla
    - Services
      - Web server (Apache)
      - File/Print (Samba)
      - Database (MySQL/PostgreSQL)

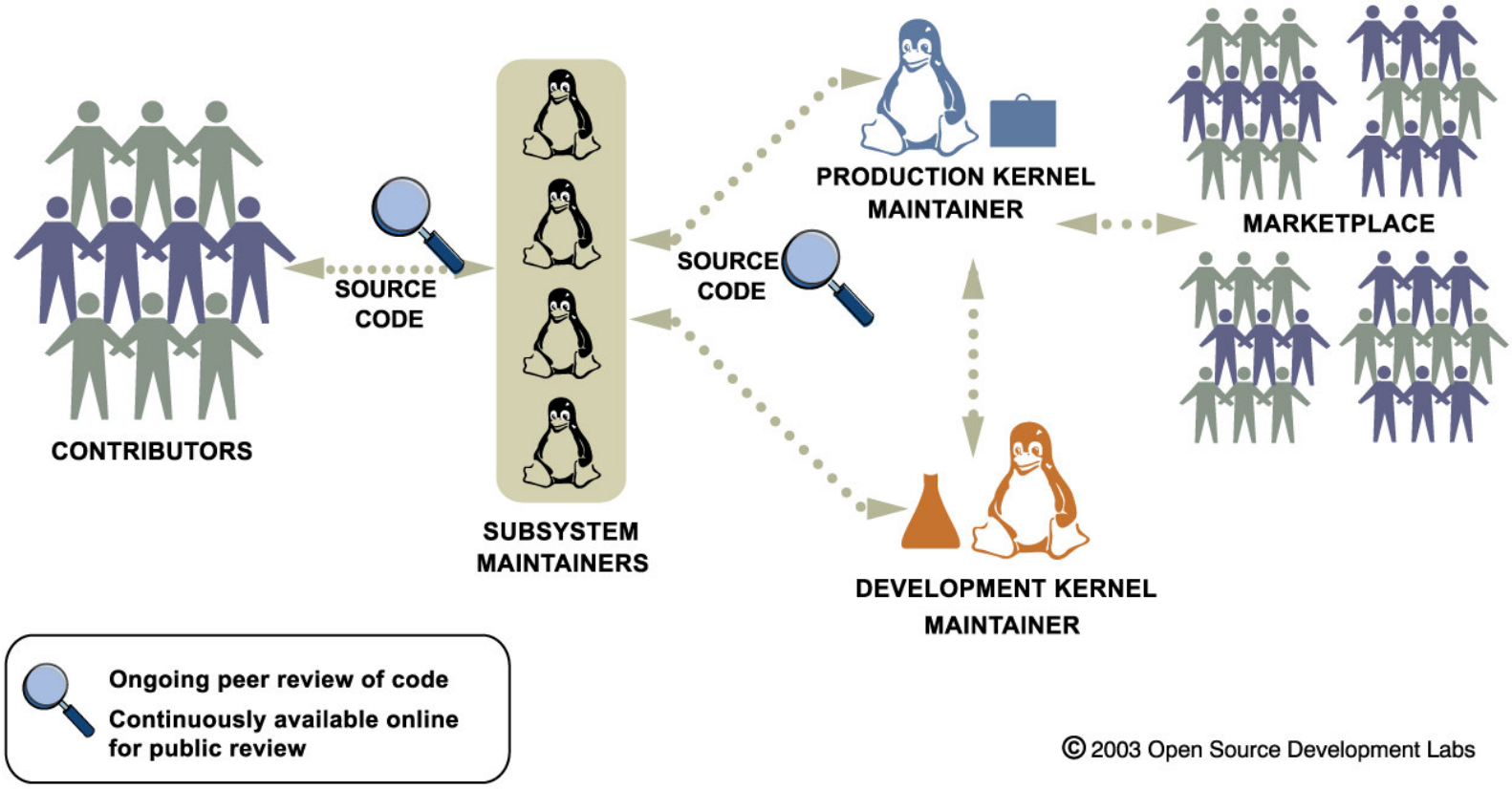
Linux Kernel Development Timeline



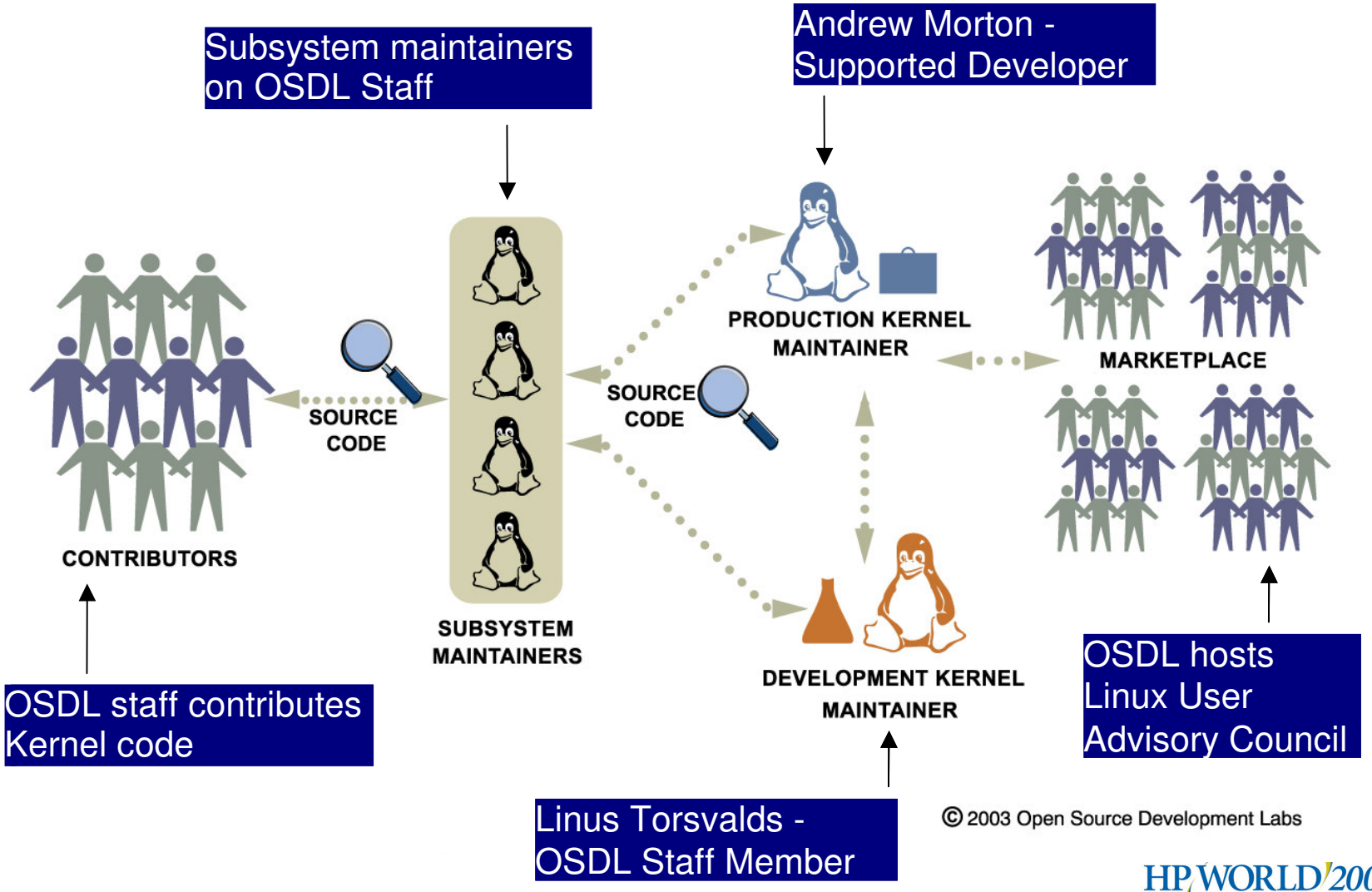
Linux kernel development process

- Open
- Hierarchical
- Methodical
- Rigorous
- Systematic
- Robust
- Proven
- *Not always understood by those unfamiliar with OSS*

How the Linux Kernel is Developed

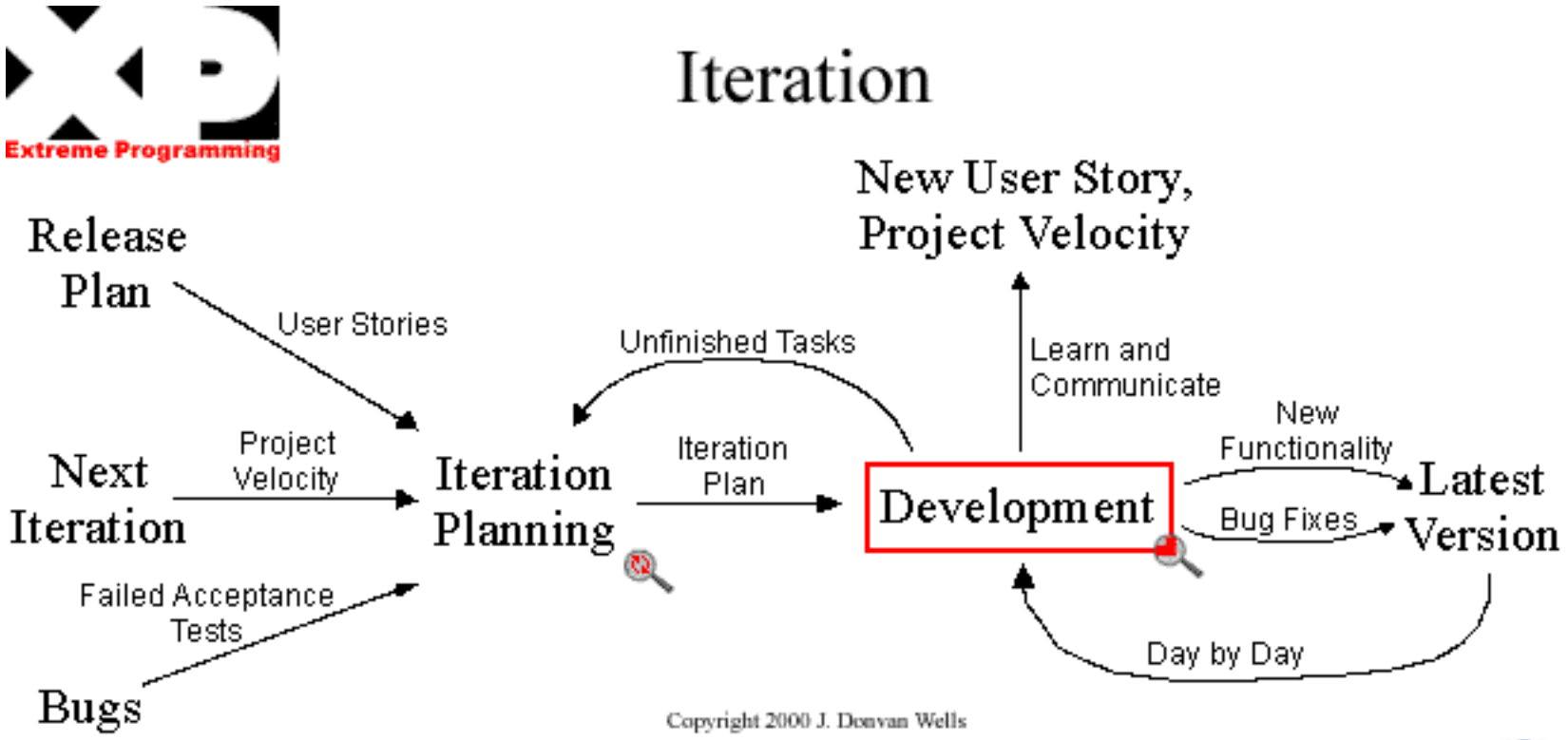


OSDL's Role in the Linux Development Process



Extreme example of Extreme Programming

- Not quite the same process
  - Mainly missing the management feedback loops but ....



www.extremeprograming.org

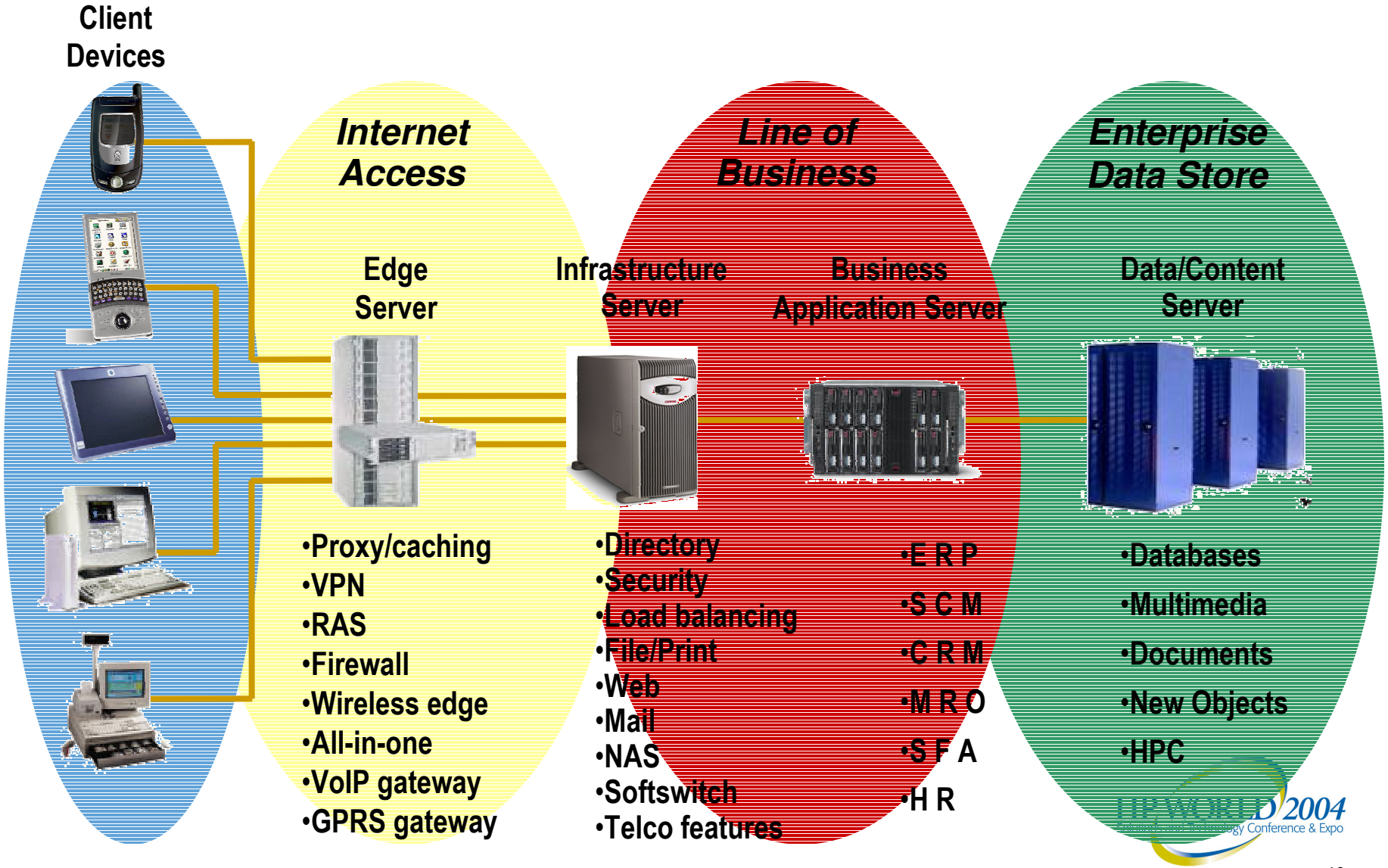
Or to use UML terminology

- It is an iterative development process
  - Proprietary OS development is by the waterfall method
- Subsets of functionality
  - Accepting of patches as small bits
  - Avoids the large patch drops and major changes
- Time boxing
  - Releases dropped every few days
  - Allows review and test feedback
- Practices
  - Regression testing by end users – real applications
  - Continuous integration

OSDL supports long range planning

- Most Linux developers – develop
  - Strategic long range planning (SLRP) not their itch
    - But they are thinking about two years out
- However many people do need to see SLRP
  - OEM, ISV, IHV, large end users
- OSDL working groups accomplish this -
  - Full deployment stack involved in the planning
    - Component manufactures
    - Distributions
    - OEM
    - Integrators and VAR
    - End users

Scope of Enterprise Adoption - Clients, Infrastructure, Data Center



Solution different working groups

- Carrier Grade Linux
- Data Center Linux
- Desktop Linux
- Not in OSDL scope embedded
  - But covered by the Consumer Electronics Linux Forum
    - www.celinuxforum.org

Example Workgroup functionality

OSDL is its membership…

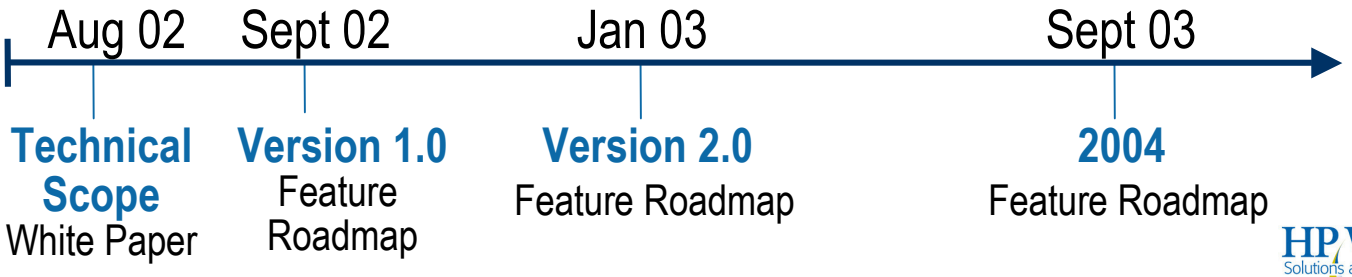
DCL
Data Center Linux Initiative

Steering Committee

Technical Workgroup
- Specifications
- Proof of Concept
- Validation

Marketing Workgroup
- Requirements
- Communication
- Technical

- Scalability
- Performance
- Manageability
- RAS
- Security
- Usability
- Standards
- Clustering



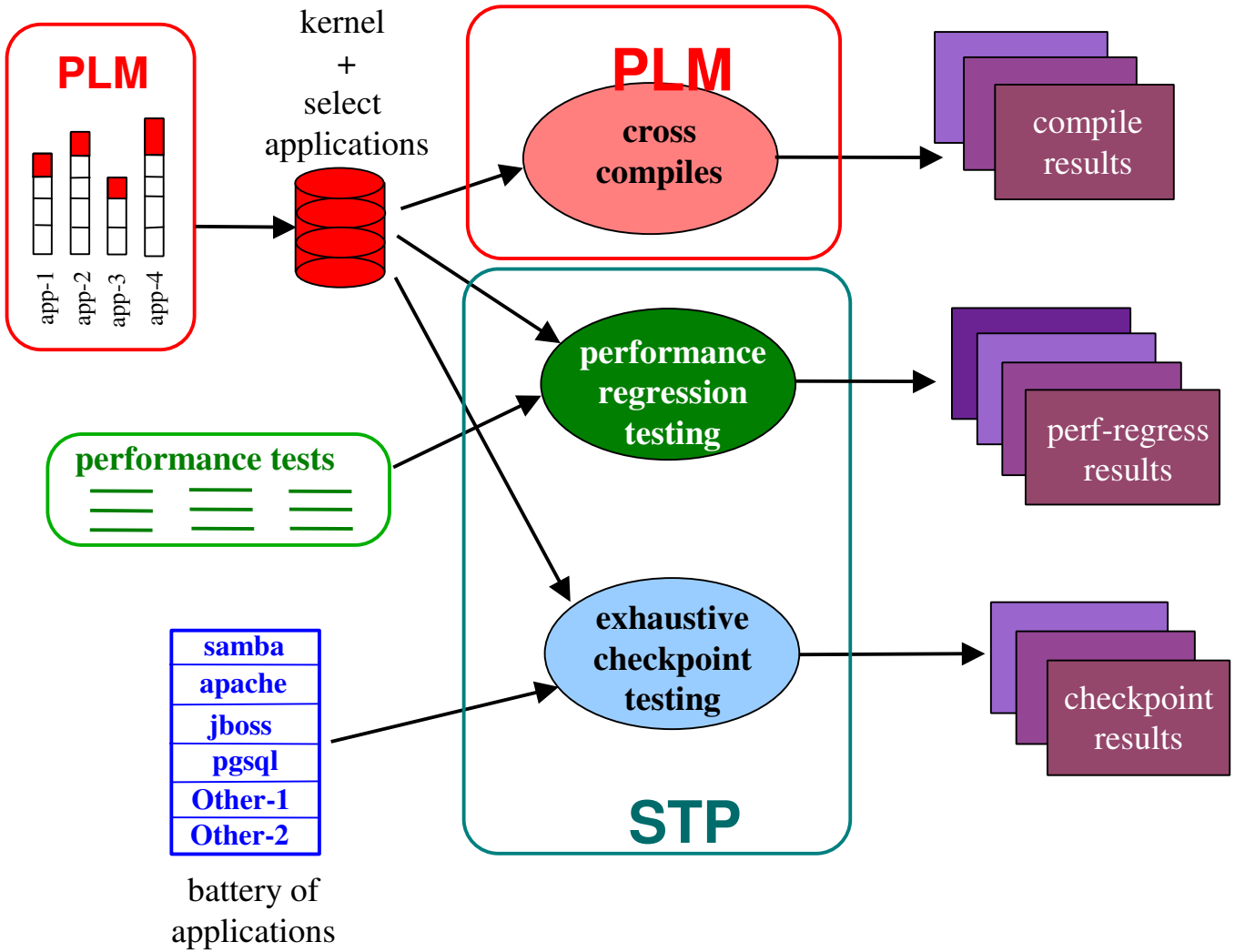
Licensing

- Open source developers are concerned about IP
  - Differences is developers retain copyright
    - Like musicians owning rights to a song instead of music company
- Open source licenses www.opensource.org
  - Most of the kernel uses GPL, LGPL, BSD
- From a business standpoint very simple
  - quid pro quo for developers can be summed up as:
    - I give you these rights to the software and what I ask for in return is the same rights back from you – if you modify the source code
  - Some minor differences and exceptions
    - For example BSD allows code to be moved to closed source

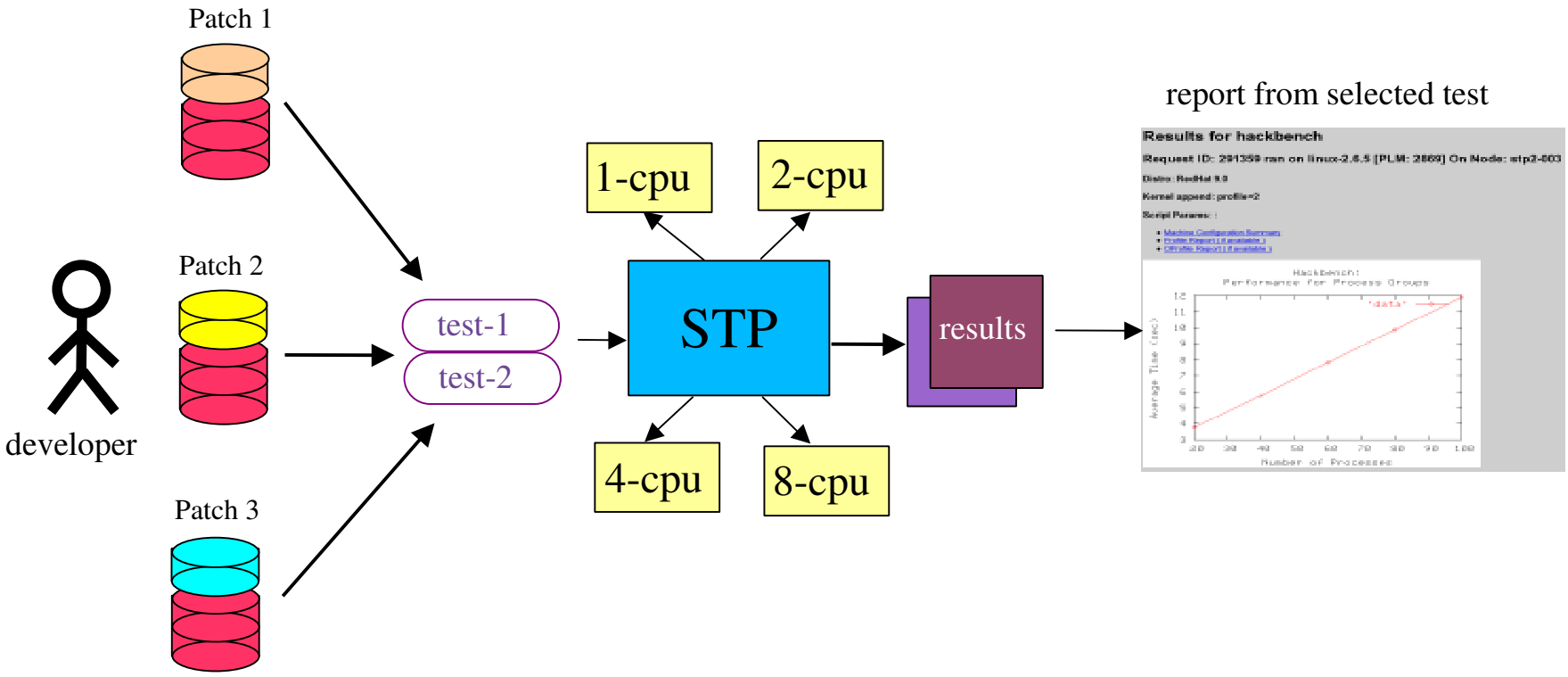
Testing – what is happening

- Many places
  - Most testing is done by individuals/companies
    - In house with results reported on failure
- OSDL provides first come first serve test access
  - Linux based open source only
- Two methods for accessing
  - Project machine – dedicated machine for project
  - Automated
    - STP – automated test and build
    - Kernel tinderbox – automatic build and test of kernel drops

Automatic Testing - ongoing



OSS Developer



trying alternate patch solutions and analyzing results

Getting involved

- Many places
  - Development
    - www.kernel.org
    - http://developer.osdl.org
    - www.freshmeat.net
  - Testing
    - Linux Test Project – http://ltp.sourceforge.net
    - OSDL STP testing – http://developer.osdl.org/dev/stp
  - Planning
    - OSDL working groups – http://groups.osdl.org/workgroups

HP WORLD 2004

Solutions and Technology Conference & Expo

Co-produced by:

interex

shared knowledge • shared power

encompass

AN HP USER GROUP