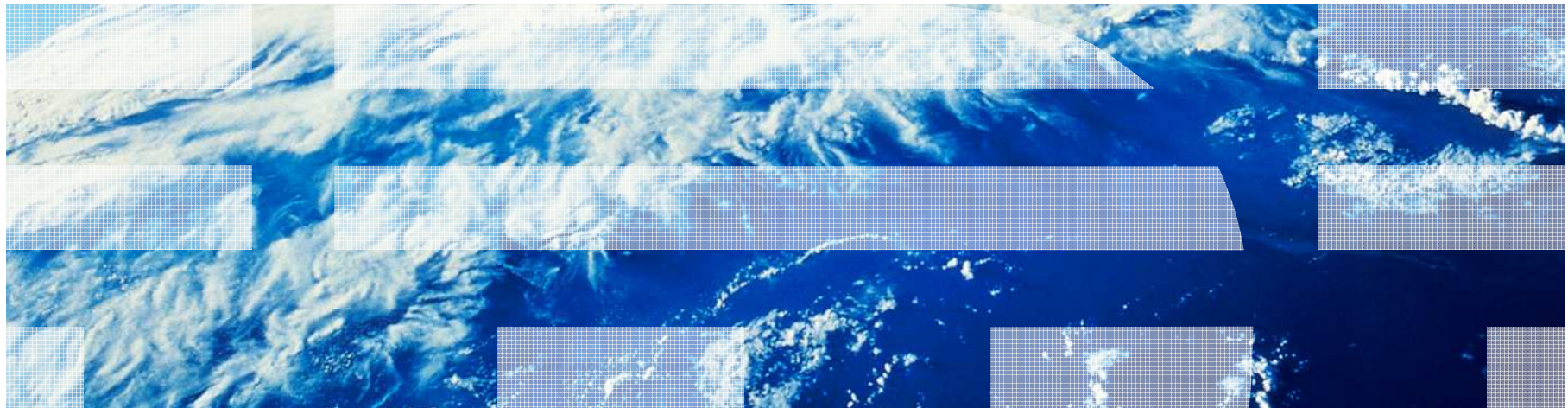




Robert W. Wisniewski
Chief Software Architect
Blue Gene Supercomputer Research

Things to think about: Codesign and IP



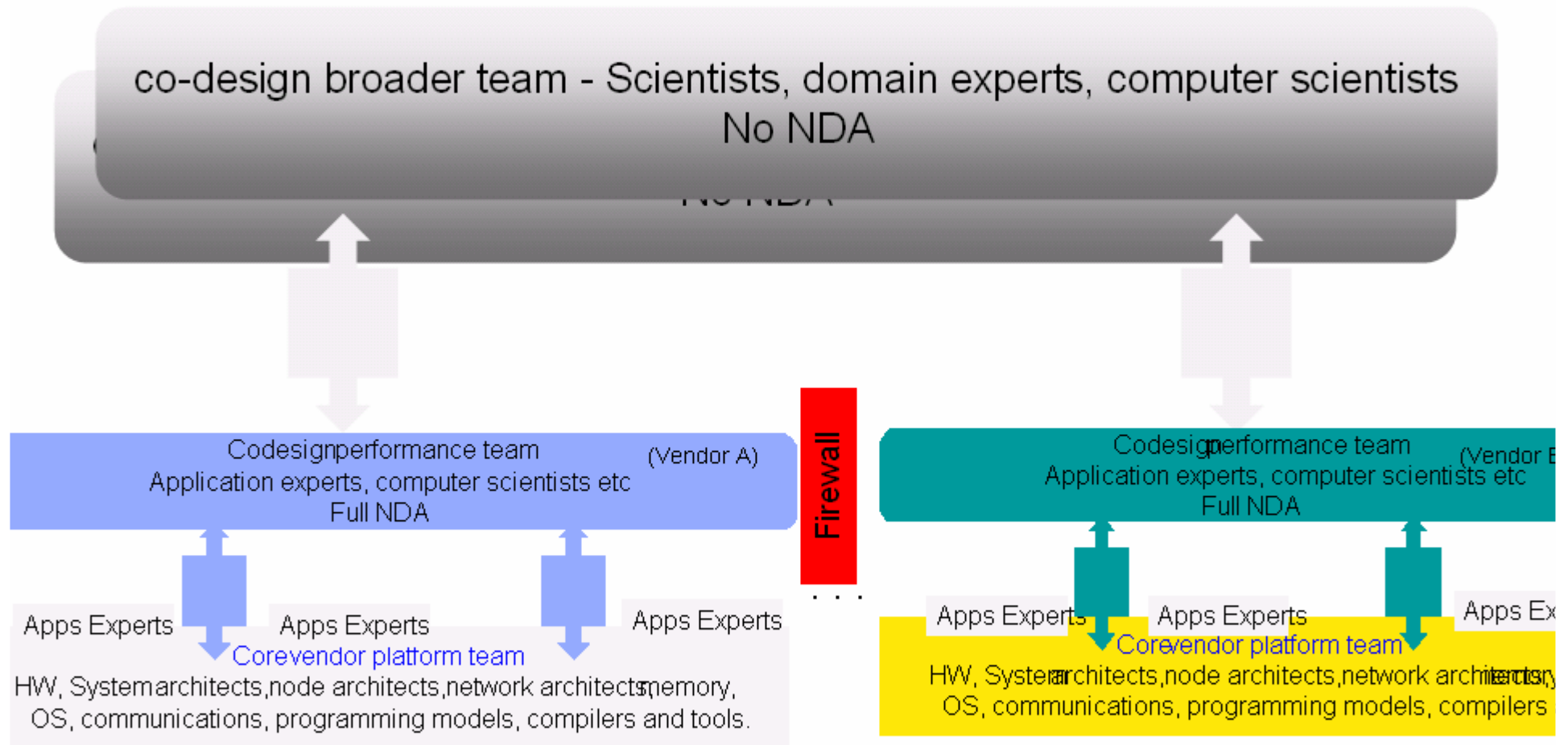
Thoughts on codesign and community development

- **Big part of codesign is passing on bad news ☺, and then working together on alternatives**
- **Frequently interlocked milestones (no more than 6 months)**
- **Open source is misleading, what is really desired is community development**
- **Open source/community development is not necessarily cheaper for vendor**
- **Just providing common API is not sufficient**
 - What is participating model for defining, must have stability
- **Fragmentation**
 - Must balance early investigation against significant investment: Lustre, Panasas, PVFS
- **Can do codesign on individual application, but need to abstract out key application requirements across a suite application**
 - Can not be all things to all applications
 - What are most important bottlenecks
- **Model development work after successful models**
 - Examples from IBM's perspective: MPICH, PAPI, Valgrind
- **Support is challenging**
 - Customers want vendor support, but without active involvement that is difficult
- **Chicken and egg problem**
 - Application developers do not want to commit to a model unless they know it is supported
 - Vendors do not want to support a model until they have commitment from customers that it is important and will be used

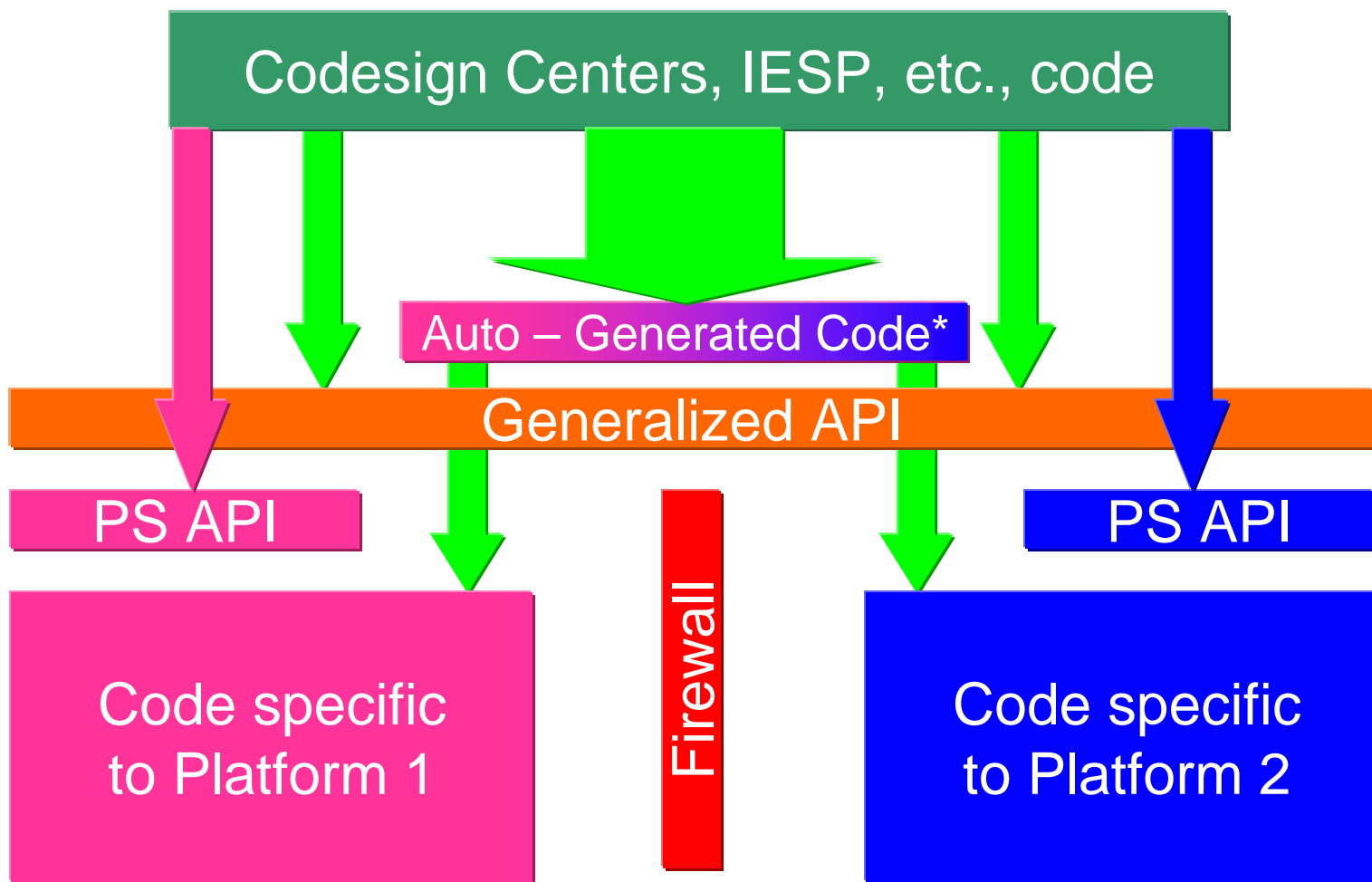
Thoughts on IP

- **Some areas should remain proprietary for differentiation**
 - IBM examples: GPFS, XL
- **Corollary: have solutions that leverage commercial solutions**
- **Community should specify requirements not solutions**
 - Allow alternative solutions
- **Vendors most concerned about contamination**
 - Accidental inclusion of other IP
- **Open source license should be vendor friendly**
 - Track pedigree of code – contributor agreement
 - License non-viral
 - If incorporated into product need to be able to charge for product
- **IP agreements will take a *long* time – start now or better yesterday**

'Virtual' co-design center - proposed structure



One Model How This Might Work



*idea from Chemistry Exascale Codesign Center – thanks to Robert Harrison

To Make it All Work

- **Need a working agreement of the process behind codesign**
 - Will be harder when everyone can not be in the same room

- **Vendors need to be fully engaged**
 - And funded 😊

- **Exposure of the co-design team to confidential design consideration**

- **Design constraints and proposed solutions must flow both ways**

- **Will require a considerable resource expenditure**

- **Needs to be uniform and centralized across codesign centers and IESP participants**