

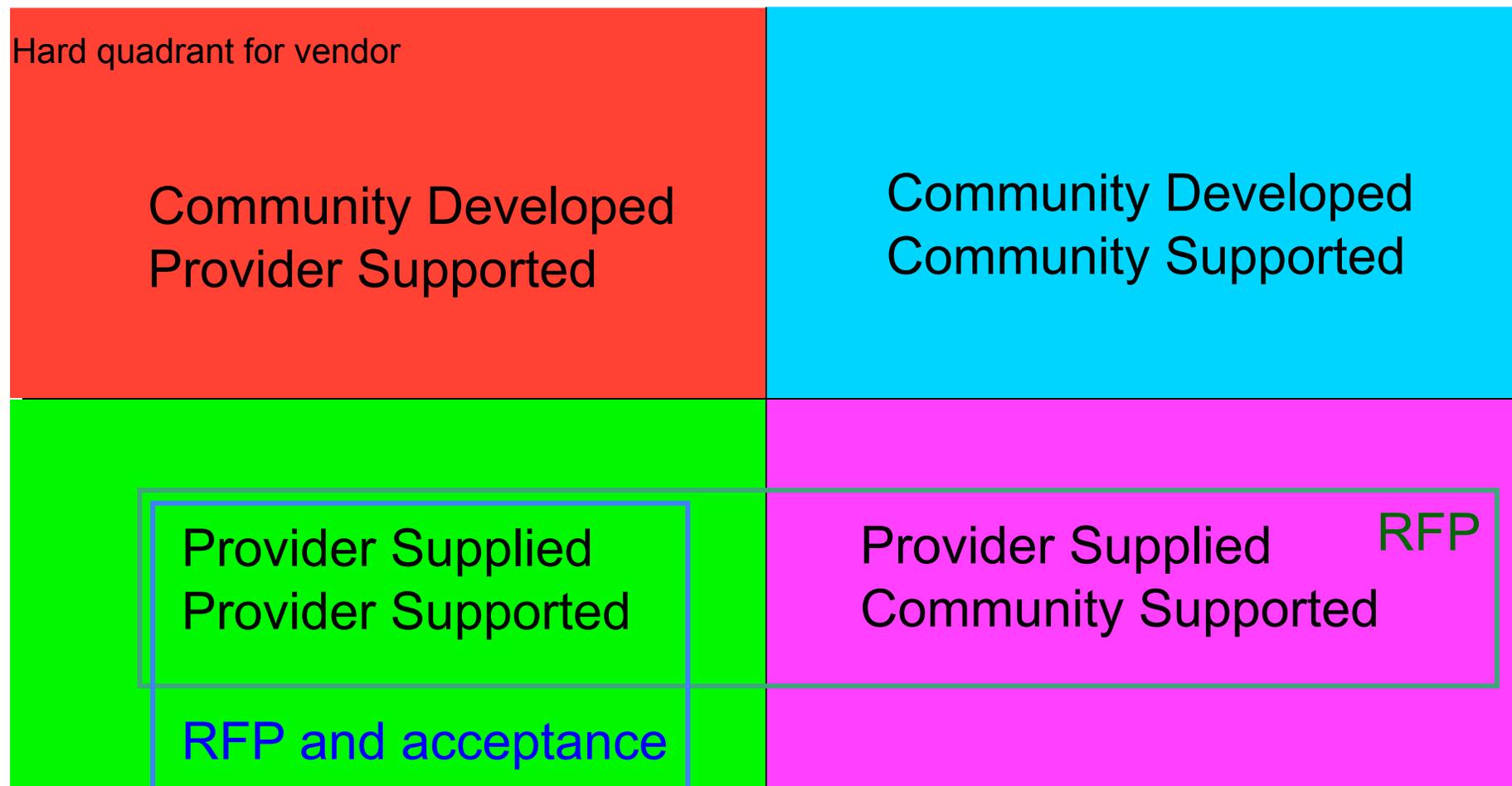
Requirements

- **Rather than assume open source or other define what the requirements are**
 - Community developed does not need to be open source
- **Might be different at different levels**
 - Closer to applications
 - Makes sense to be more towards open source
 - Should be applicable across architectures
 - Closer to hardware
 - Can make sense to be less fully open source
 - Provider may pay for this
- **Earlier in timeline focusing on wider community need – program models**
 - Allow early investigation
 - Later in timeline then vendor-specific implementation
 - funding could potentially used for non open source initiative
- **Example out in community about mixed development model**
 - HPSS – not open source, but community has access

Requirements

- **Community wants**
 - Does not want to be limited to full proprietary solution
 - Flexibility to replace components of stack
 - Open API
 - Leverage investment
 - Applications to have common environment
 - **Provider**
 - Not be held responsible for components that do not have control over
 - **Facility**
 - Level of quality
 - Best value
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- **Need 3-way relationship so all parties are involved in delivering end solution**

What is suggested Model for software



*developed implies who implemented

*supplied could be co-developed

Mapping Components to Quadrants

- **Operating systems**
 - Could be co-developed (e.g., Linux)
- **Runtime Systems**
- **I/O systems**
- **Systems Management**
 - Low-level (RAS, power control, boot) vendor developed
 - Higher-level resource management, security, performance co-developed
- **External Environments**
- **Programming Models**
 - Industry Standard (OpenMP, MPI, COF)
 - Other (UPC, ARMCI)
- **Frameworks**
- **Compilers**
 - Different models work
- **Numerical Libraries**
 - Different models work
- **Debugging tools**
 - Different models work
- **Application Element: Algorithms**
- **Application Support: Data Analysis and Visualization**
- **Application Support: Scientific Data Management**
- **Resilience**
- **Power Management**
- **Performance Optimization**
- **Programmability**