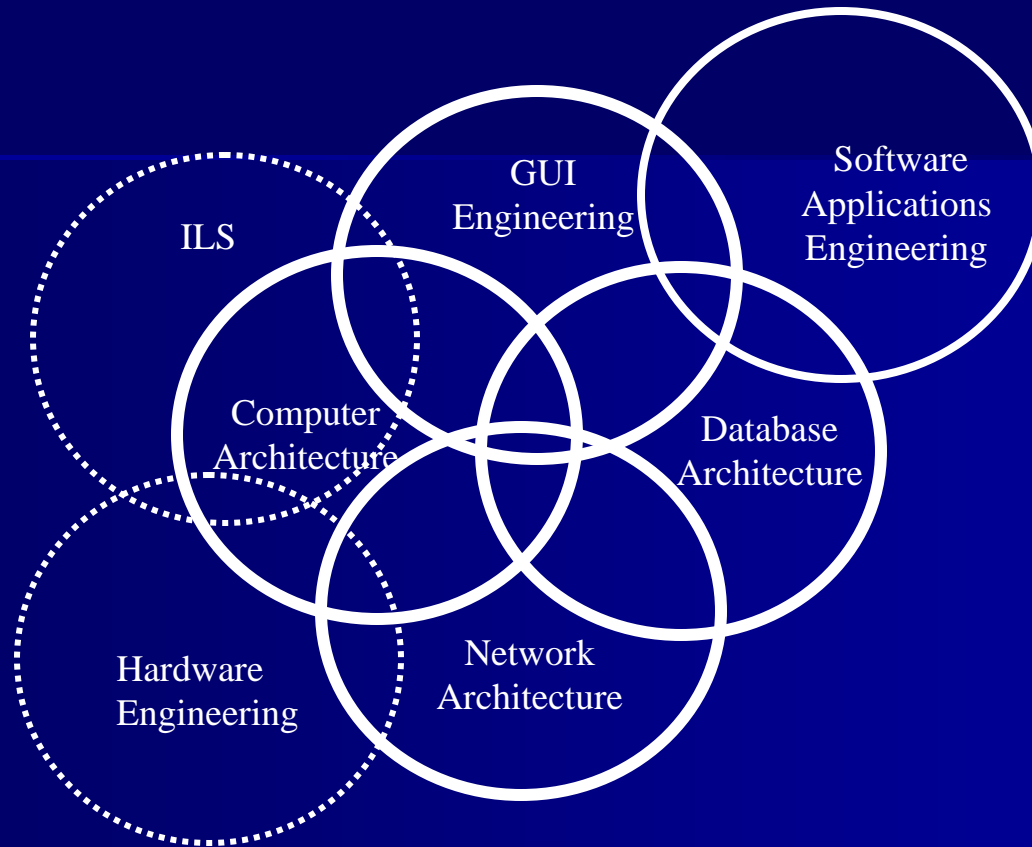


Technology Convergence & Its Adaptability to New Capability

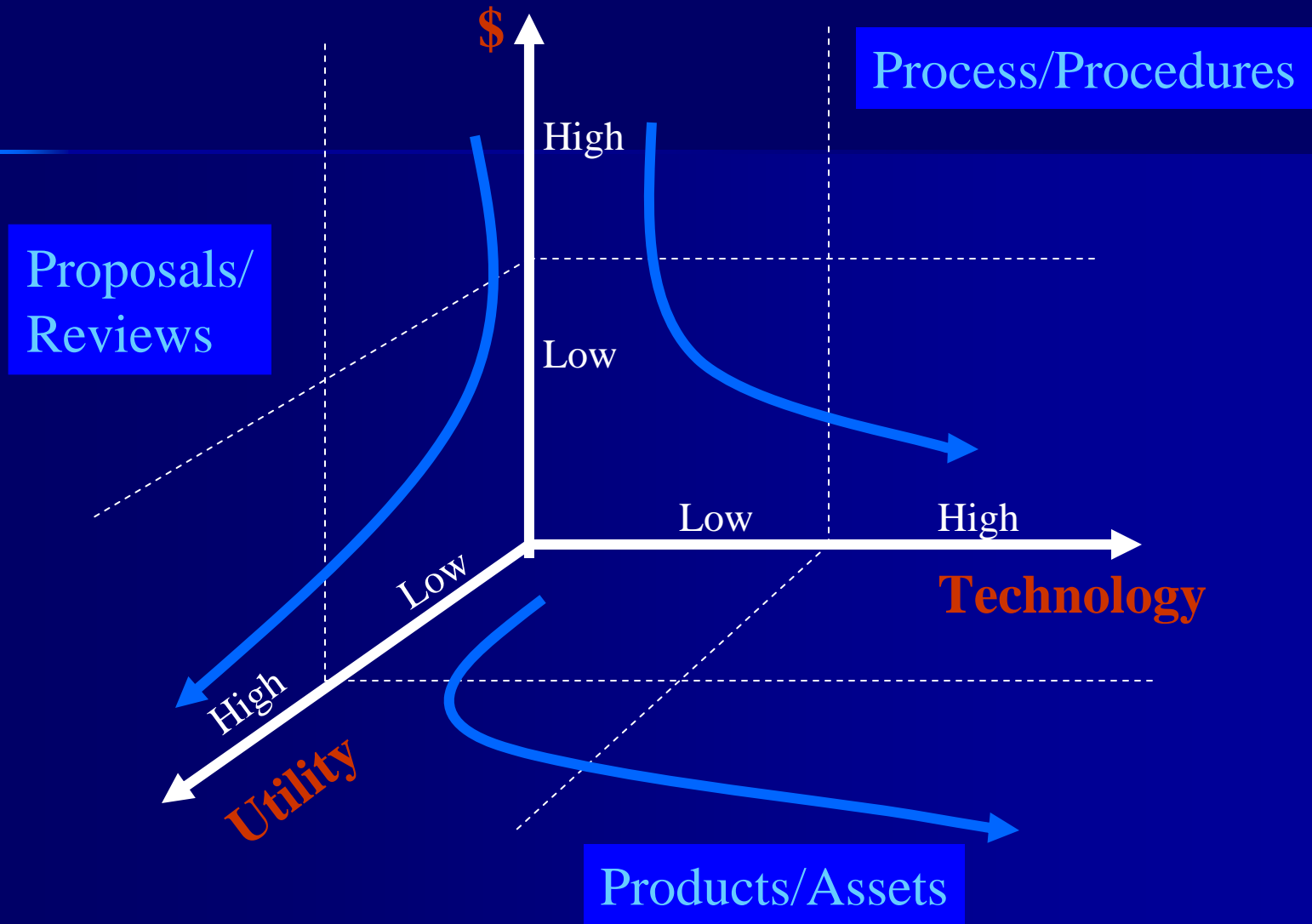
April 2, 2008

Bob Epps / George Auyeung

Key Technologies



The Challenge



Process/Procedures

- Systems /Software Engineering Issues
- Architecture issues
- Sharing Knowledge
- Impact of new/emerging technology on procedures
- Impact of new/emerging technology on cost estimation
- CMM, CMMI and ISO

Products/Assets

- Independent Research & Development (IR&D)
- Standards (DoDAF, SOA)
- Prototypes
- Team practices(Agile development, Extreme programming)
- New emerging environments/tools (.Net, C#, UML2, SysML, etc.)

Proposals/Reviews

- Capture Process
- Design Assurance
- Independent Non-Advocacy Reviews
- Cost Estimation Process
- Design to Cost techniques

An Example: IPC Architecture Migration to Better Adapt to New Capability

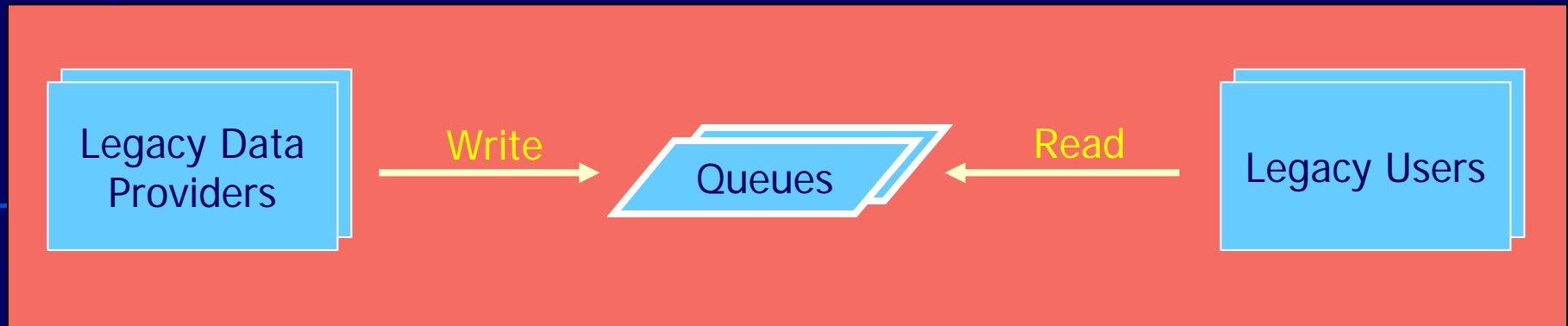
Problem Statement

- To enhance the messaging and data distribution capability in a legacy ground system to better adapt to new capability

Background

- A legacy ground system uses proprietary shared memory queues to enable processes to exchange data/messages within and across UNIX platforms

Legacy Shared Memory Queue IPC



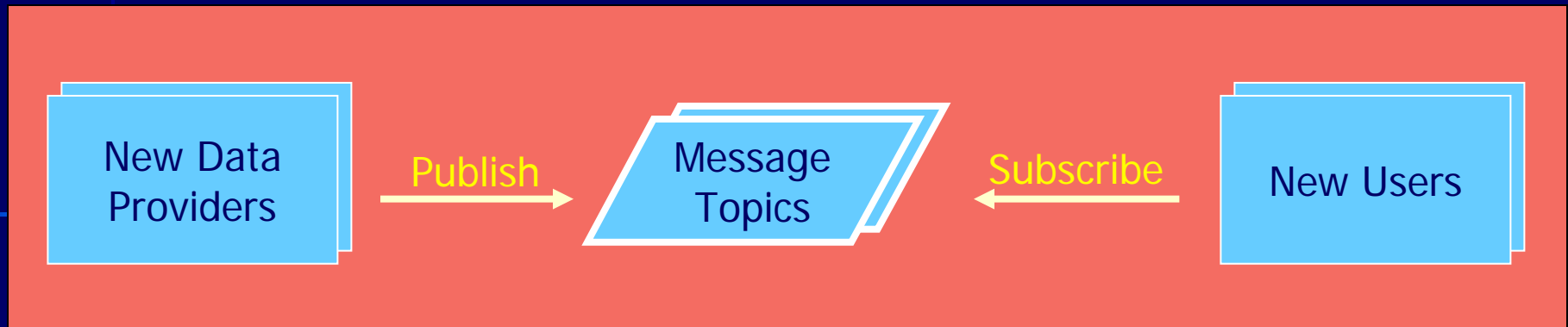
■ Strengths

- Excellent mechanism to share data on the same machine when high performance is required

■ Weaknesses

- High-cost & error-prone to configure shared memory to enable process-to-process communication
- No out-of-the box publish/subscribe capability
- No multicast capability to minimize network traffic

New Publish/Subscribe IPC



■ Strengths

- Provides publish/subscribe capability
- Lower cost to add new data publishers and subscribers

■ Weaknesses

- Costly to implement in a legacy system

New Heterogeneous IPC Architecture

