Linux XIA
An Interoperable Meta Network Architecture
to Crowdsource the Future Internet
Cody Doucette  Michel Machado  John W. Byers

Motivation
• The legacy Internet is not well-suited to increasingly complex needs: security, mobility, management...
• Many future Internet architecture projects have emerged; none have been successful due to the legacy network's innovation barrier.
• Previous work has tried to address the barrier, but none have emphasized collaboration and interoperability.

eXpressive Internet Architecture
Three key ideas in XIA¹:
• Principal types for different usage models: hosts, ASes, content, services, as-of-yet unknown types
• Flexibility in addressing: incremental deployment, non-linear addressing scheme (DAGs)
• Intrinsic security: cryptographically-derived, self-certifying identifiers

By building the above concepts into a new network-layer protocol, XIP, network evolution is enabled.

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Summary of Work
• Fully independent network stack
• High-frequency editable routing table
• Efficient routing dependencies
• Support for POSIX socket API
• In synch with latest Linux kernel release
• Reasonable forwarding performance; comparable to Linux IP in most cases
• Reliable multicast application

Future Goals
Short Term:
• Building applications: iperf, nginx, Firefox
• Going upstream in Linux Kernel
• Implementing information-centric networking and advanced routing techniques

Long Term:
• Maintain a level playing field for technologies old and new
• Enable anyone to experiment with networking ideas in a collaborative environment
• Crowdsource the future Internet

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