



PRISTINE

Programmability In RINA for European
supremacy of virTualised NEtworks

- Stein Gjessing, University of Oslo, Norway

PRISTINE Background: RINA



- RINA is an emerging clean-slate programmable networking approach
- Centered on Inter-Process Communication (IPC)
- Supports
 - high scalability
 - multi-homing
 - built-in security
 - seamless access to real-time information
 - operation in dynamic environments

PRISTINE Background: RINA



Inter Process Communication (IPC)



Distributed IPC Facility (DIF)



Recursive Inter-Network Architecture (RINA)

PRISTINE: Main results at end

- Software Development Kit for the RINA implementation, (building on initially developed one by the IRATI project)
- Specification and implementation of policies that address congestion control, quality of service, addressing, routing, authentication, access control and resiliency
- First spec. and impl. of a DIF Management System (DMS)
- Three prototypes for the three use cases:
distributed cloud, datacentre networking, network serv. provider
- First RINA Simulator.



PRISTINE: Results Oct. 2014

- Initial implementation of the Software Development Kit (Linux Kernel) for a RINA implementation.
- Identification of the relevant RINA IPC Process components and policies for :
 - Congestion avoidance/control, Distributed resource allocation, Addressing and routing, Authentication, authorization and confidentiality, Security coordination within a DIF, Reliability and high availability and Network Management
- Draft specification of a RINA DIF Management System (DMS)
- Set of draft designs of RINA-based solutions for the Distributed Cloud, Datacenter Networking and Network Service Provider use cases.
- Initial proof of concept implementation of a RINA Simulator

Future Topics / Areas



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- ❑ Specification of techniques to enhance performance and resource utilization in networks.
- ❑ Specification of innovative security and reliability enablers to support authentication, access control, encryption and security coordination within virtual networks.
- ❑ Framework for multi-layer configuration, performance and security management.
- ❑ Network architecture, protocols and interfaces that support (distributed) applications.
- ❑ Deployment and experiments with alternative network architectures
 - (alternatives to the regular TCP/IP-stack).

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Questions ?

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