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How ordinary IT companies could exploit RINA



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How to bring RINA to the masses



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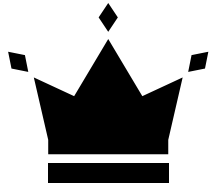
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How ordinary IT companies could exploit RINA

TRIFORK.
...think software

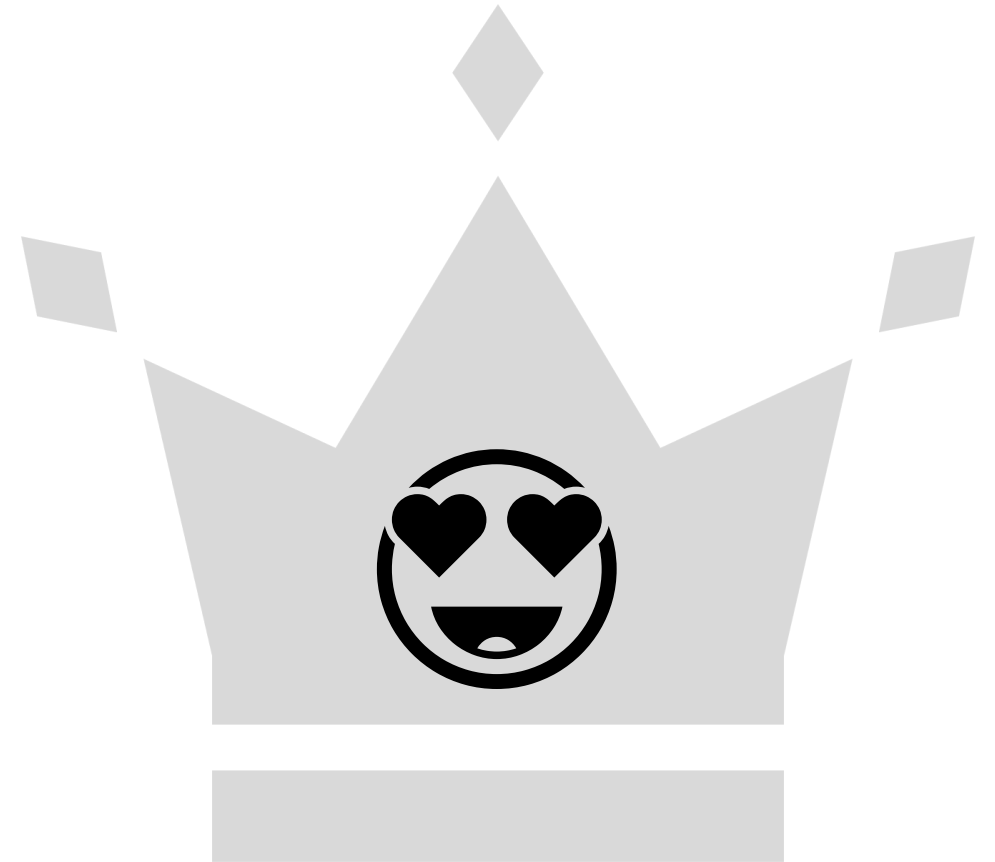
- What would it take for a company like Trifork to adopt RINA in apps?
- Why would they?

... “ordinary”?

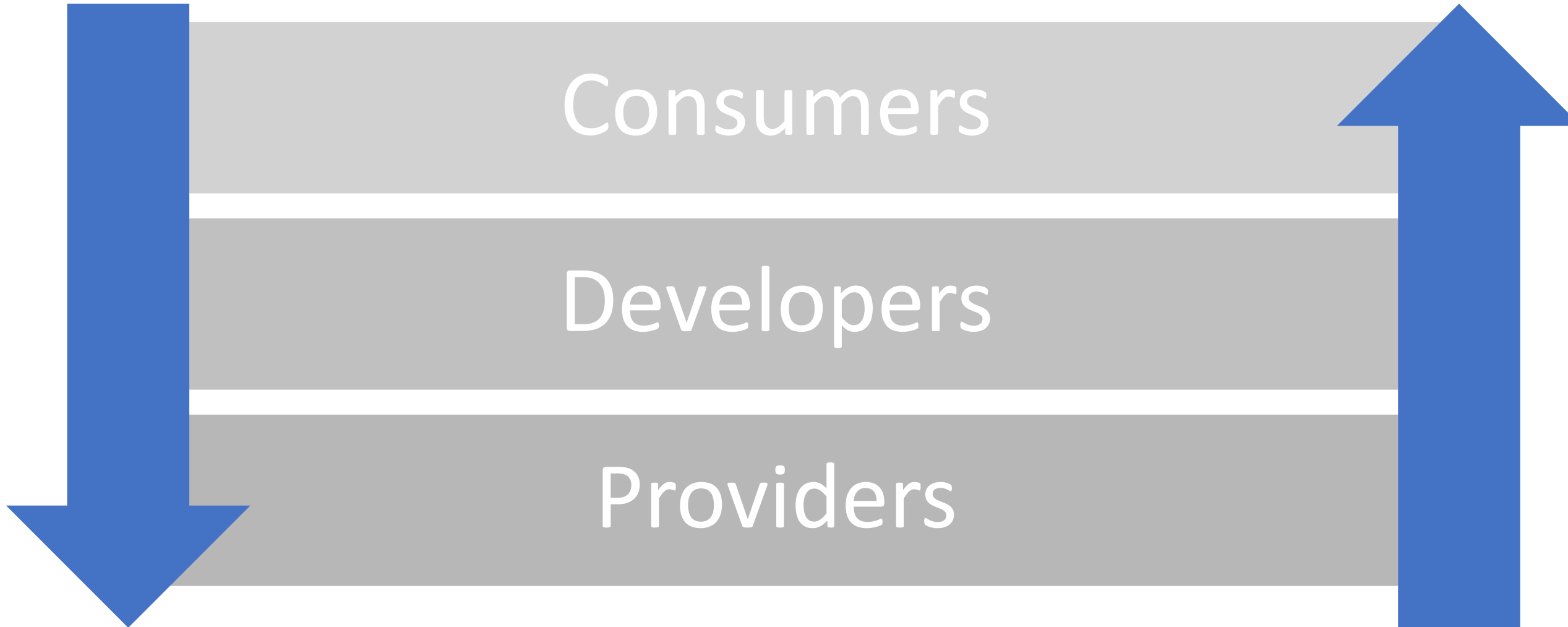


RINA benefits

- Simple (Clean API, medium-agnostic)
- Robustness (mobility, dtn)
- Security (scope, auth, crypto)
- Flexible (adapts to networks, configurable)



Bringing RINA to the masses: Two migration paths



Getting RINA to consumers

- What does that mean?
- How far are we?
- A potential!
- Low hanging fruit!

RINA for consumers – what does that mean?

- Consumers don't care about RINA!
 - They care about whatever service they're getting
 - Developers then care about RINA
- Accessible to developers
- Need-to-have: Supported across platforms (edge-ish / top layer)
 - Cloud / server / desktop / mobile / IoT / gadgets
- Nice-to-have: Supported in the network (core-ish / lower layers)
 - Network devices (consumer/business)
 - ISPs

How far are we?

- Implementations
 - Library / application support level: ProtoRINA (java)
 - OS level: IRATI, rlite (Linux only)
- Consensus
 - Selling the idea
 - Lobbying
 - Standardization
- Cloud
 - Hypervisors
 - XaaS

A potential:

IPC Continuum

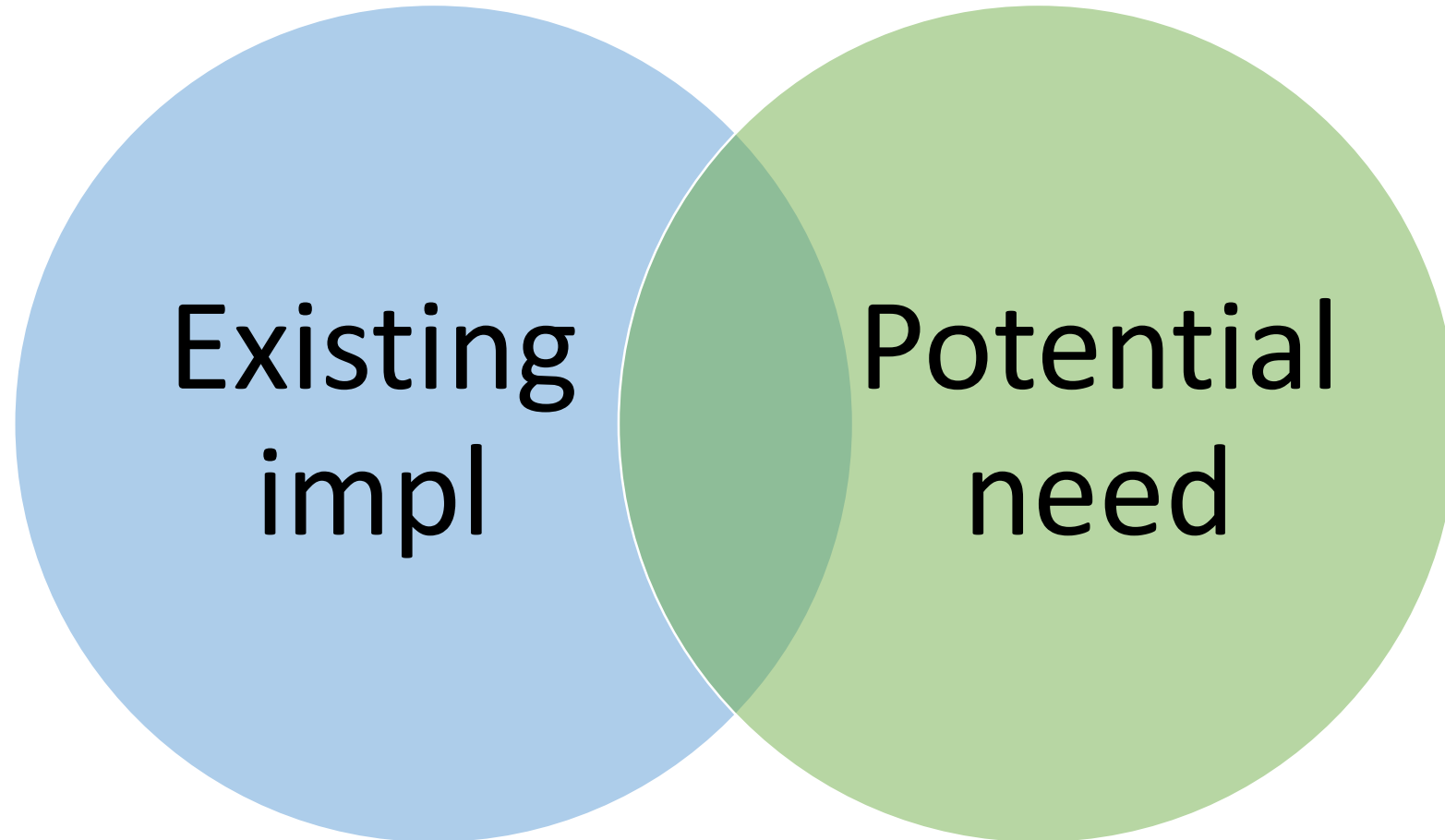
RINA as a zero-conf comm fabric

- Off-the-shelf communication platform for consumer devices
 - Desktops
 - TVs
 - Mobiles
 - Watches
 - IoT gadgets
 - Servers (/cloud)
- Over existing mediums
 - UDP
 - Ethernet/wifi
 - Bluetooth
 - NFC
 - USB / peripherals
 - Zigbee
 - POSIX IPC
 - HTTP? (fallback / fw-restrictions / last-resort)

Existing players

- securedevicegrid.com
 - Secure IoT platform
 - Multiple platforms
 - iOS 7+ / Android 4+ / Windows Phone 8+
 - Windows Embedded/ Windows 10 IoT Core
 - Linux and BSD-based Platforms
 - Texas Instruments CC3200 series
 - Broadcom WICED WiFi Board
 - Raspberry Pi
 - Intel Edison
 - MSC C10M-BT (Ubuntu using Yocto distribution)
 - Direct connections or via cloud/server
 - But: only IP or Wifi (and proprietary)
- Message queue systems (not as IoT-ish)
 - Zero MQ
 - Rabbit MQ, ActiveMQ (Apache), Kafka (Apache), Microsoft Message Queuing, Amazon MQ / Simple Queue Service
- Service meshes (also more cloud-ish)
- It seems there is a need for secure, fail-safe, cross-platform, zero-conf communication platforms!

Low hanging fruit?



RINA as a zero-conf IoT platform / MQS / service mesh

- Leverage existing base
 - ProtoRINA
 - Userspace
 - Generic Java (Android?)
 - Desktop/mobile?
 - IRATI/r-lite
 - Kernel space
 - IoT devices (Linux)
 - Servers (Linux)
 - Ouroboros
 - User space (Posix C)
 - Rumba
 - Orchestrator
 - NFV
 - Cloud/container/microservices
- Expand / retrofit
 - Great mobile support
 - Android / iOS
 - Non JVM support
 - Windows
 - Embedded
 - Shim DIFs for new mediums
 - Zero conf / pre-conf / ready-made policies
 - Security / encryption
 - Per-medium calibrated
 - Different Scenarios

RINA as a zero-conf IoT platform / MQS / service mesh

- Pretty good product:
 - Adaptable:
 - from IoT / PAN fabric to cloud MQS
 - Medium-agnostic simple API for users
 - Handles failures and dynamic network graphs
 - Should just work: zero-conf out-of-the-box configurations for varying scenarios
- No need to wait for infrastructure support
 - Move to user space / top layers
- Open source
 - Engagement and feedback loop:
 - Developer community
 - Research
 - Standardization
 - Commercial
- A good product could create a big impact
- Future / other areas: autonomous vehicles, cloud/microservices, SDN/NFV/slicing, IMS, etc.

Thank you!

- Questions?
- Comments?
- Feedback?