



WIP: RINAish Thoughts on DTN
Naming and Addressing
(interim-2021-dtn-01 / 2021-05-27)

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Agenda

- 1) Overview RINA & REDMARS
- 2) Names & Addresses in BPv7
- 3) Scenario for Discussing Role of EIDs
- 4) Conclusion

Disclaimer: The following information is based on our current understanding, which may be partially or fully incorrect.

Overview RINA & REDMARS

- Recursive InterNetwork Architecture (RINA) has been proposed by John Day as alternative approach for creating networks
- Eliminates weaknesses of the approach taken by the currently dominating Internet protocol stack (e.g. node mobility)

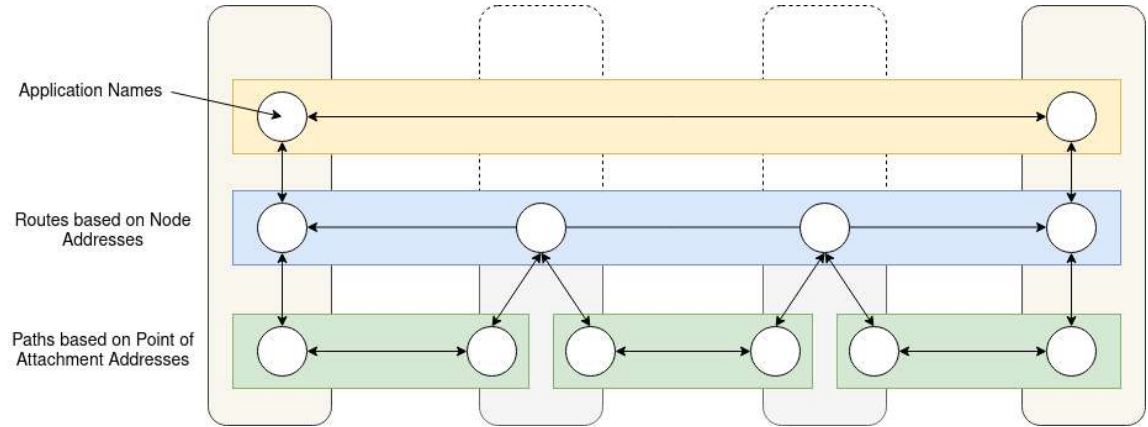


Figure based on Figure 5-2 (p. 158) of „Patterns in Network Architecture“ by John Day

- REDMARS project funded by the Federal Ministry of Education and Research (FKZ16KIS1356) explores options for transferring RINA concepts to the domain of Delay- and Disruption-tolerant Networking
- Proposal: RINA's "clean" and systematic approach may be helpful in the discussions on DTN naming and addressing

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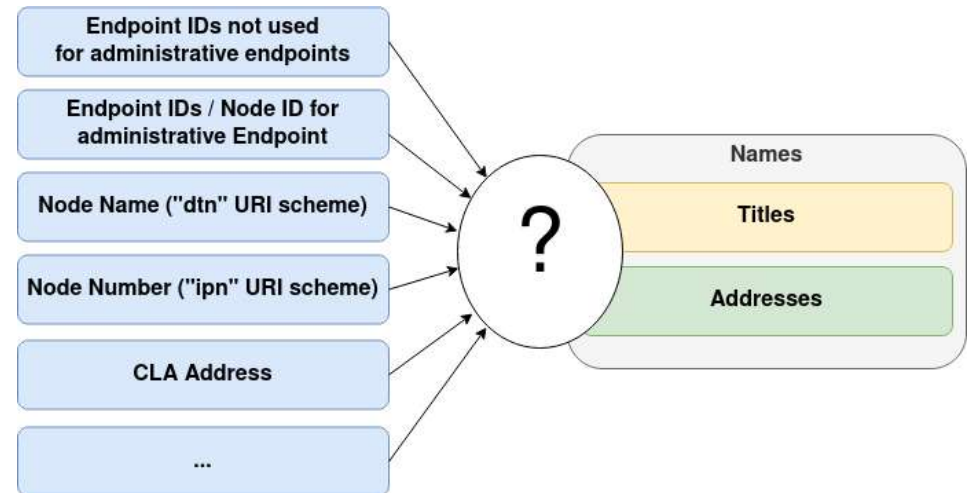
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Names & Addresses in BPv7

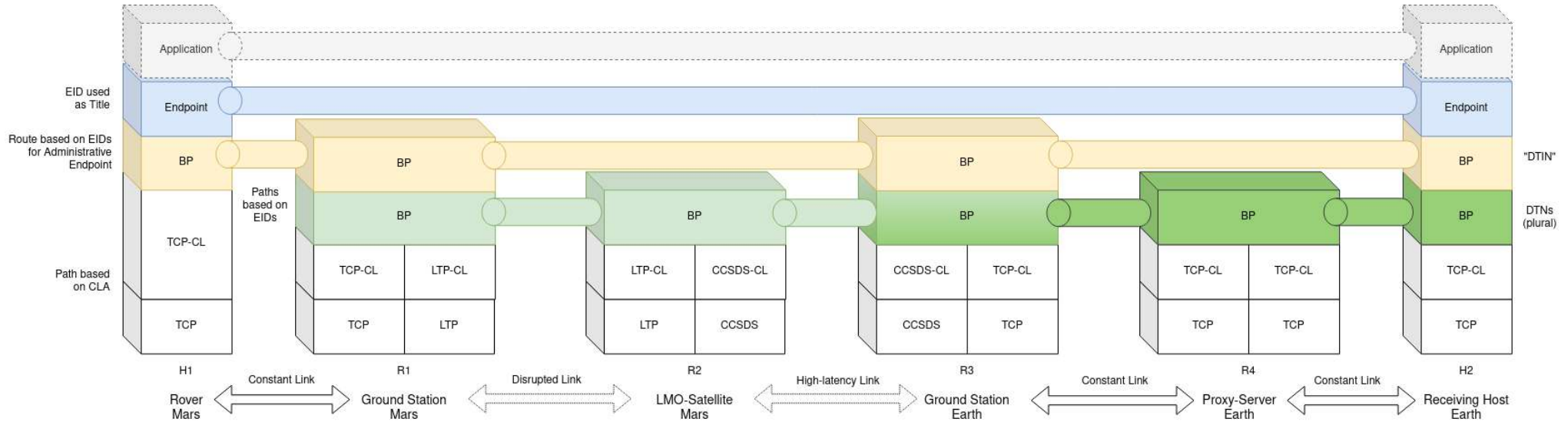
"A **name** is a **unique string**, N , in some alphabet, A , that **unambiguously denotes some object** or denotes a statement in some language, L . The statements in L are constructed using the alphabet, A ." (Definition 2 on p. 286 of "Patterns in Network Architecture" by John Day)

"An **address** is a **topologically significant name**, which unambiguously identifies an object or a set of objects." (Definition 4 on p. 288 of "Patterns in Network Architecture" by John Day)

"A **title** is a **topologically independent name** that unambiguously identifies an object or a set of objects." (Definition 6 on p. 288 of "Patterns in Network Architecture" by John Day)



Scenario for Discussing Role of EIDs



- "Delay-/Disruption-tolerant Inter-Network" (DTIN) is introduced for limiting the scope of topological information → renders possible arbitrary amount of "overlay" networks
- EID is used in different ways on the relevant layers: As title without topological significance, as input to the routing algorithm and as "Point of Attachment Address"

Conclusion

- **We need clearly defined terms during discussion on naming & addressing in DTNs**
- EIDs may take various roles (titles, addresses (addresses on different layers)) for
 - ...identifying applications
 - ...routing
 - ...path selection
- Bundle-in-Bundle Encapsulation (BIBE) is essential for limiting the scope of layers and for clearly separating layers
- Besides EID information stored in the current canonical bundle blocks it would be helpful to introduce an extension block for storing EIDs relevant as names on higher layers

Thanks for your attention!
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