



Interface ID lifetime Algorithms (Informational track)

draft-rafiee-v6ops-iid-lifetime

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Privacy vs. Operational Considerations

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- The users want different levels of privacy
 - Changing/multiple IIDs is part of the solution
 - Solution might also include the applications
- Network operator want to limit the number of IIDs in use due to hardware constraints or for complexity reasons
 - Unlimited number of IID is not ideal
 - For instance, discussion on ipv6-ops@lists.cluenet.de about issues with many IIDs
- This draft is starting a discussion
 - Pointing out some possibilities in this tussle

Our Assumption & Purposes

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- Our purpose is not how to generate IID but how to maintain the lifetime of the IIDs.
 - The node generates its interface ID (IID) by using RFC 4941, RFC 3972, draft ra-privacy, draft SSAS, etc.
- Comparison of the different ways of maintaining the IID lifetime
- Discuss when to remove deprecated IP addresses from the network adapter
- Offer a framework to control the number of valid IID in a certain time while provide user's privacy

Privacy in IPv4 vs IPv6

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- Assume a host which remains on one network/location with lots of other hosts (Coffee shop, campus, etc)

IPv4	IPv6
Users cannot be identified via their IP address (NAT)	Users' can be identified by their IP address (one of IPv6 features is end-to-end communications, of course NAT6 is possible)
Browsers' cookies or other approaches to correlate users' activities	IPv6 addresses is a way of identification in addition to cookies etc

Protecting Users' Privacy

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IPv4	IPv6
Using browsers in "incognito mode" or "private browsing"	The same approach applicable in IPv6
	Future and optional: Browser asks for a separate IID for the "incognito" connections to better maintain users privacy

**How can we control the number of IP address per applications?
How can we enable applications to maintain their users privacy without any complexity?**

Lifetime for an Interface ID (IID)

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■ RFC 4941

- Maximum the IID is valid for a week
- Cut the connections after this time
- One new IID generated per day – 7 active IIDs

■ Layer-4 lifetime

- Makes problem for some services in application layer such as ftp

■ Application based lifetime

Application based lifetime

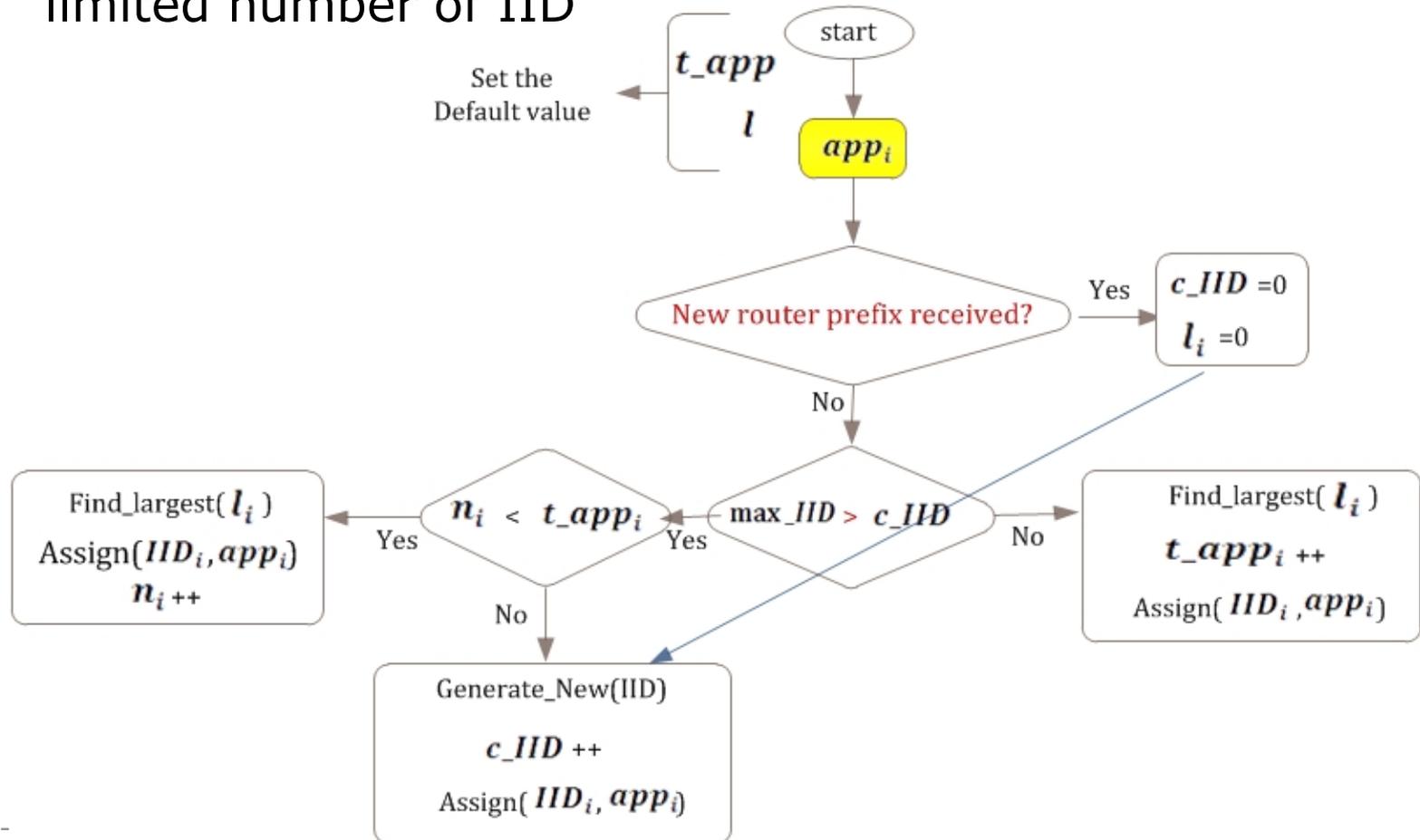
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- A framework that plays a role of intermediate between applications and network layer
- Increase the difficulty of correlating a user's activities by using different IIDs for different applications, without negatively impacting the robustness of the applications.
 - Privacy-enabled Application ask a new IID from this framework
- Remove the deprecated IID when it is not used by any applications

Application based lifetime Algorithm

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- Why we need to control the number of IID
 - To avoid multicast problem in networks that support limited number of IID



Thank you

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- Do folks have operational data on the impact of large number of IIDs?
- How we can connect the application layer privacy issues with the number of IIDs?