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Enhancing Resources Placement in a Multi-CDN Context

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Context: Some popular contents like Videos are very demanding in terms of amount and type of required resources (hardware/ Software/ Network resources) but also in terms of these resources placement in the network.

CDNs present many differences in terms of footprint, QoS and available hardware and software capacities.

A CDN performance is not stable, it is subject to traffic and demand fluctuations over time.

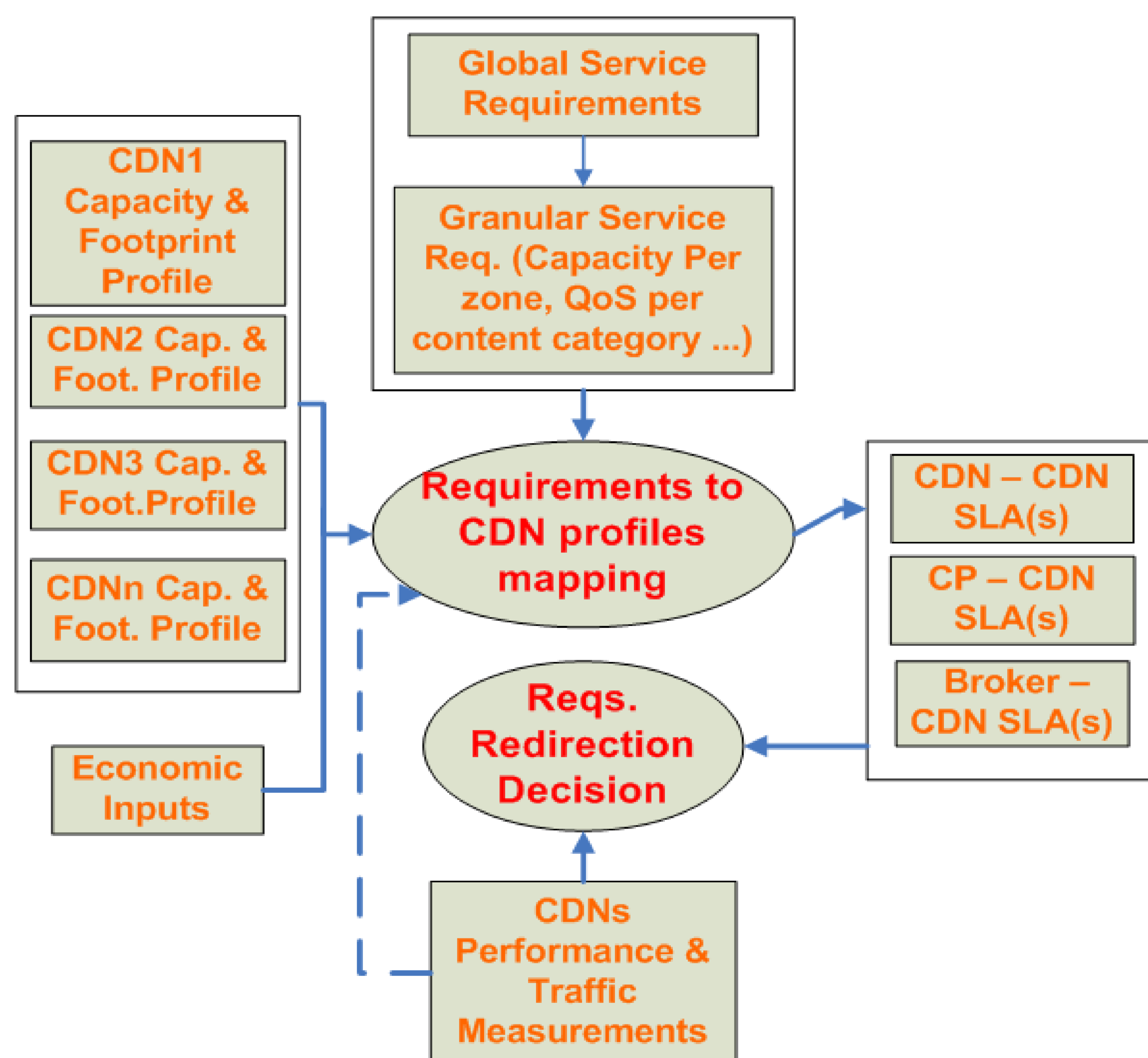
No CDN is the "Best"

Content Distribution should move from a single CDN/ CP domain to an open CDN infrastructure

What to optimize ?

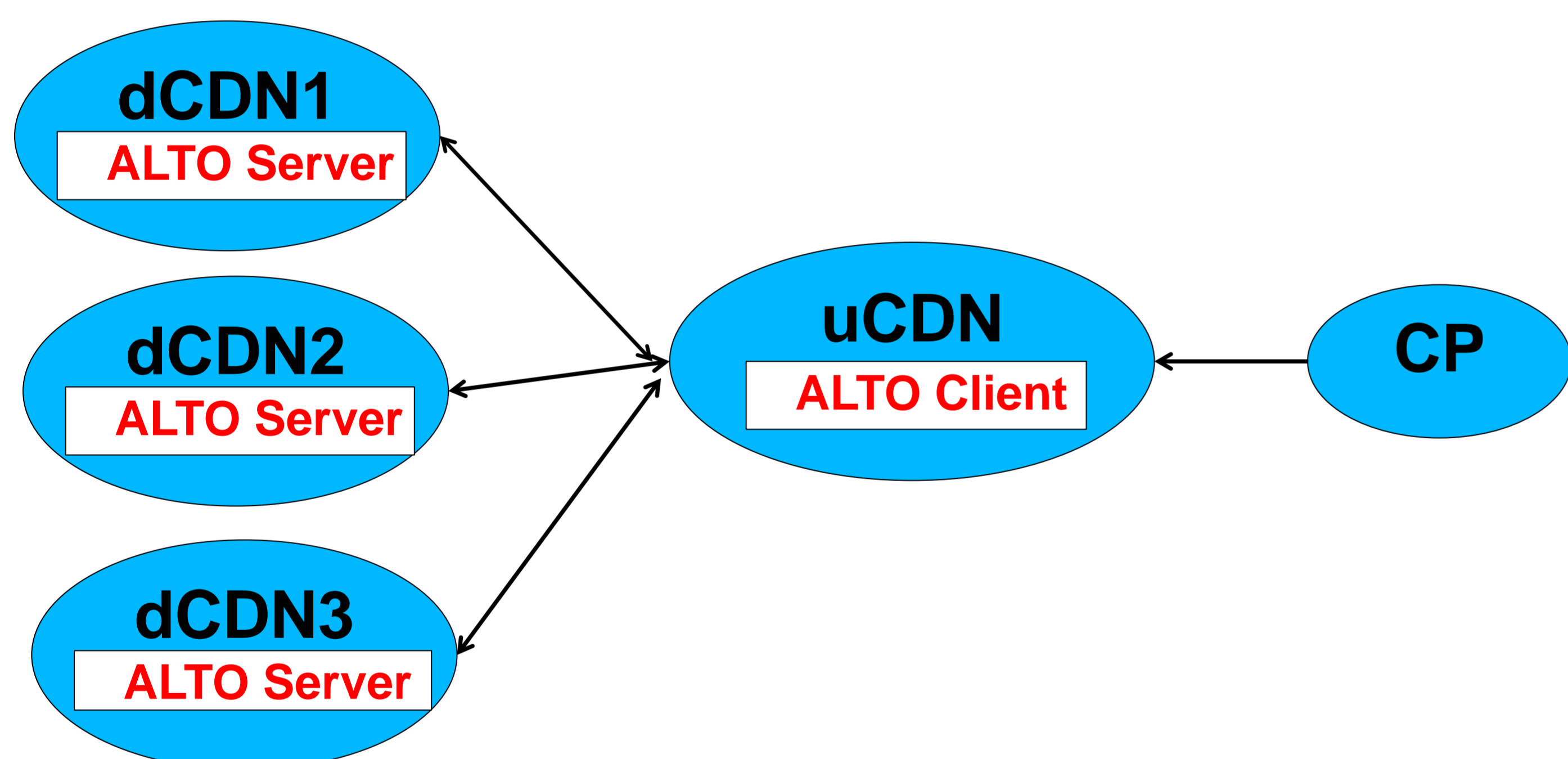
- Optimizing the **initial selection of CDNs** involved in a CDN federation
 - Ensure a more granular matching between CDNs capacities and service requirements
 - Go beyond the "geographic footprint" criteria
- Optimizing the **Redirection Process**
 - Perform dynamic measurements of peering/ transit traffic and CDN performance
 - Use these measurements as inputs for making the Redirection decision

How it works ? Framework overview

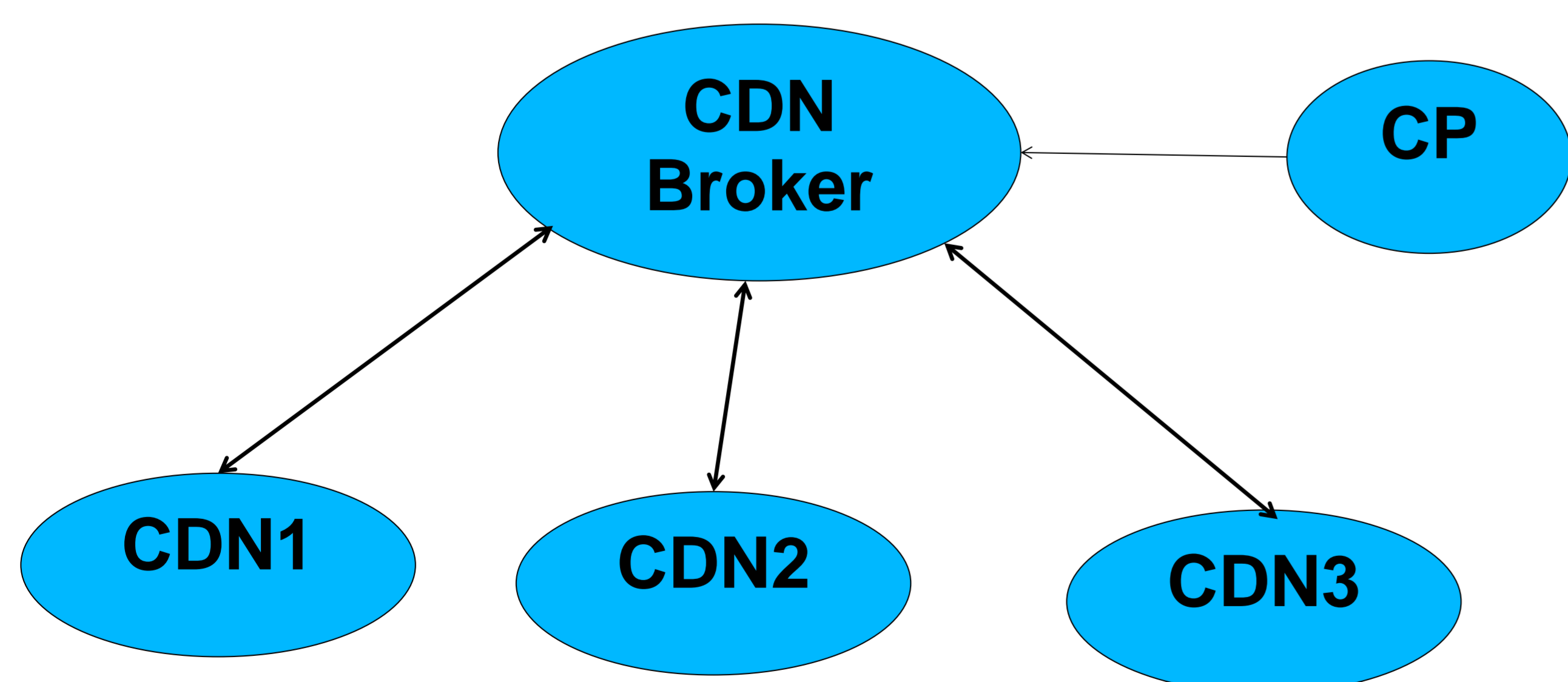


Existing Solutions For CDN Interconnection

- CDNI – ALTO working groups Proposal: Footprint based



- CDN Broker (Selector) proprietary solutions (e.g. Cedexis): Footprint and Reputation based



Conclusions:

• Our framework is expected to enhance existing approaches in terms of counting on granular information gathered from different sources (many CDNs) prior to establishing a CDN federation.

It adds dynamicity to the requests redirection process and enables updating the established SLAs based on the evolution of CDNs performance and network state.

- Future work
 - Applying the framework to specific use cases
 - Introducing subsequent algorithms
 - Moving towards the "Open CDN" Infrastructure