

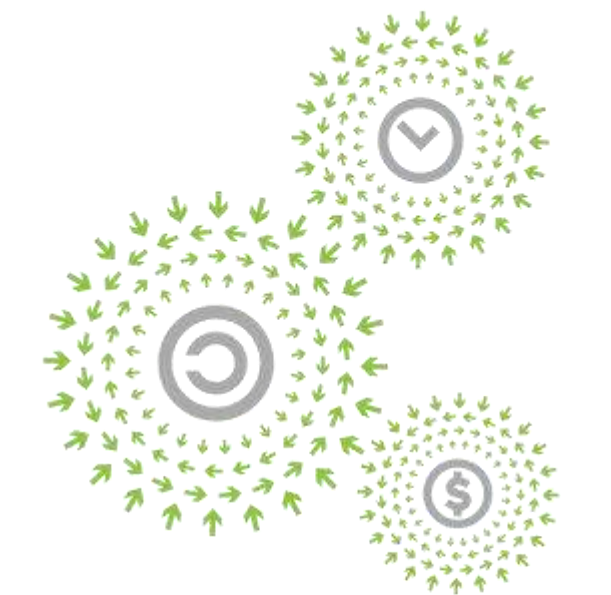
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# SONiC Application Extension Infrastructure

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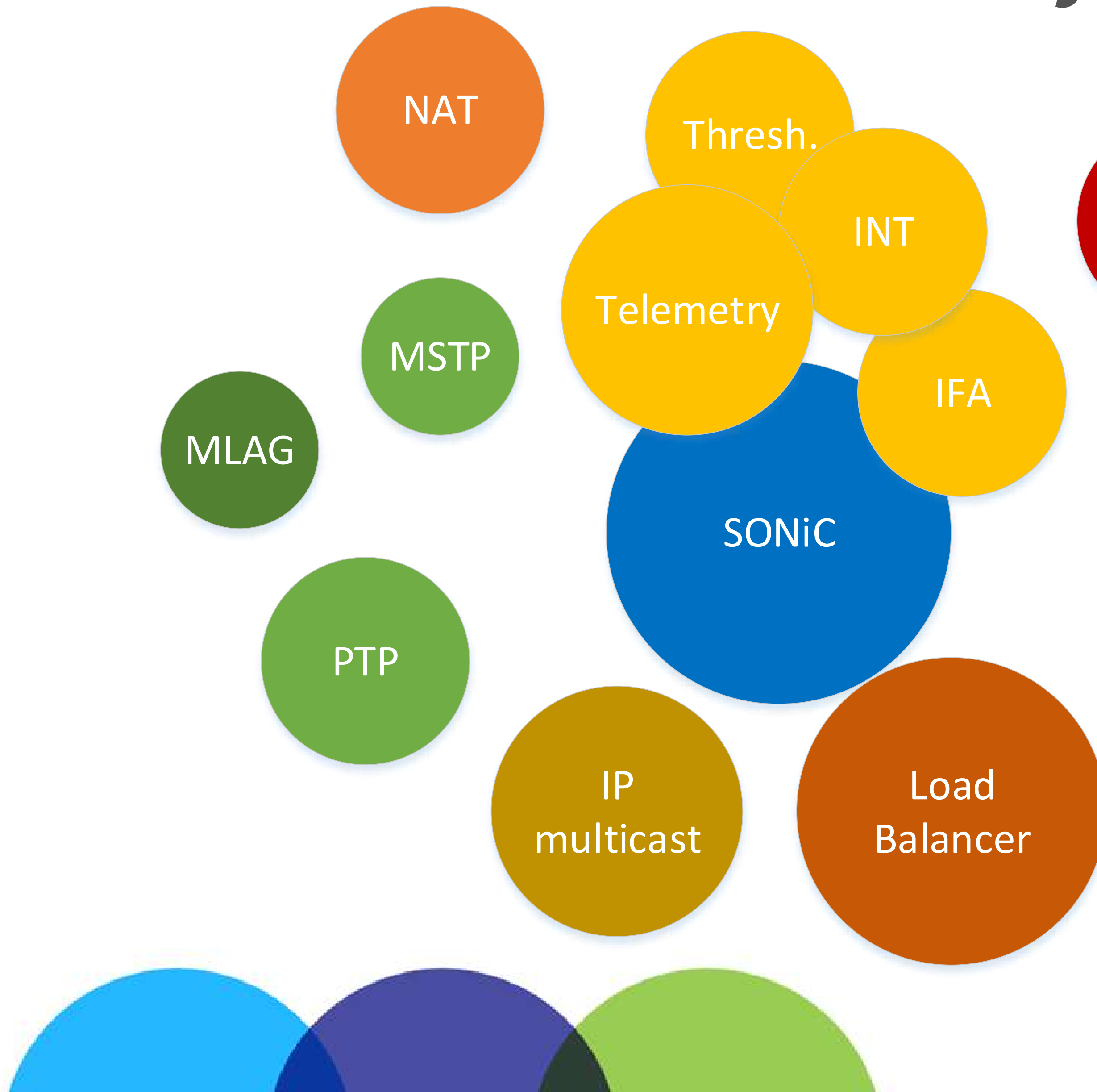
# Agenda



- State of SONiC Today
- Case for extendable SONiC
- How SONiC will enable native apps
- Gradual Acceptance
- Modular Development
- Seamless integration
- Distributed Orchestration



# State of SONiC Today



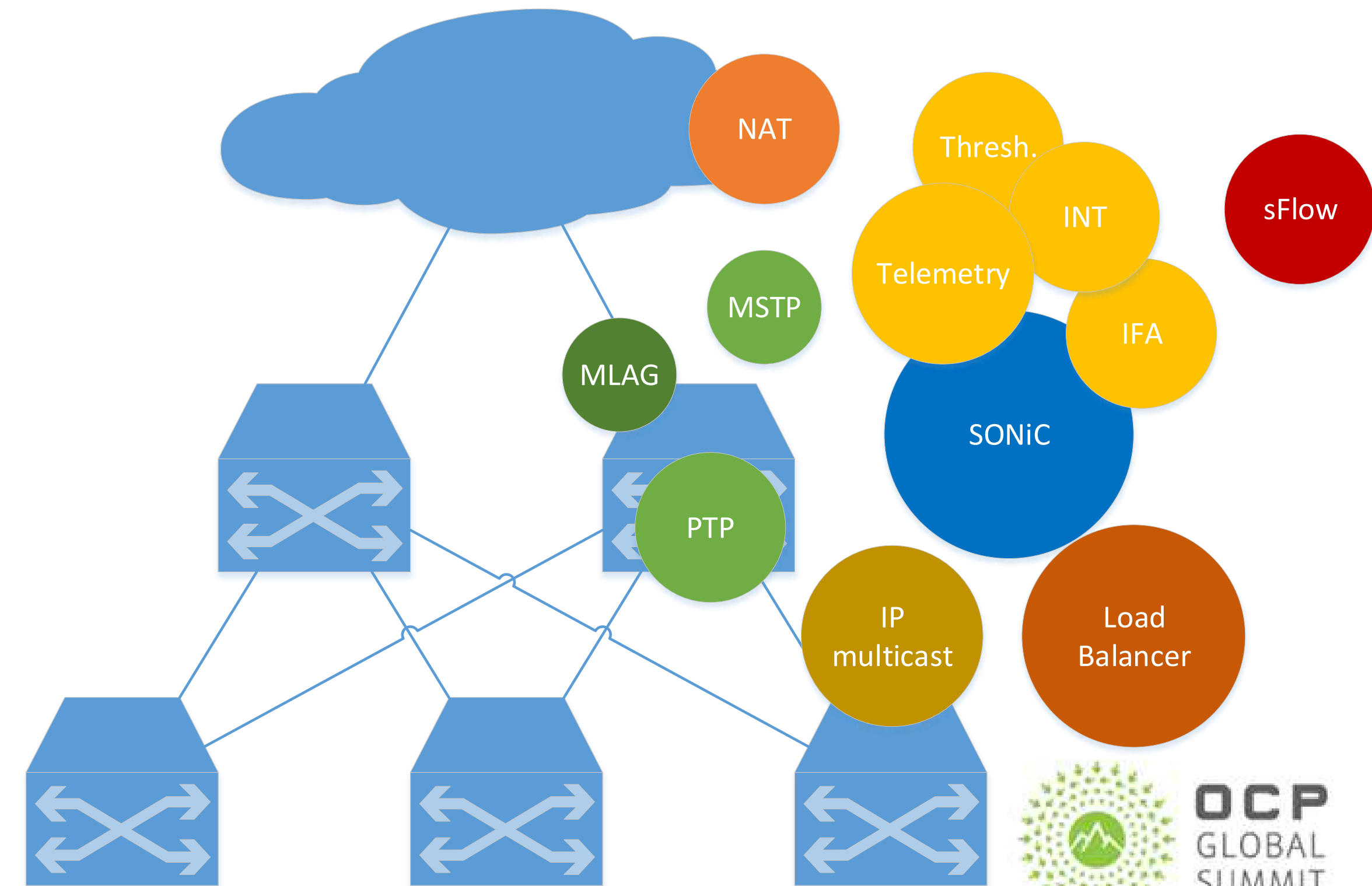
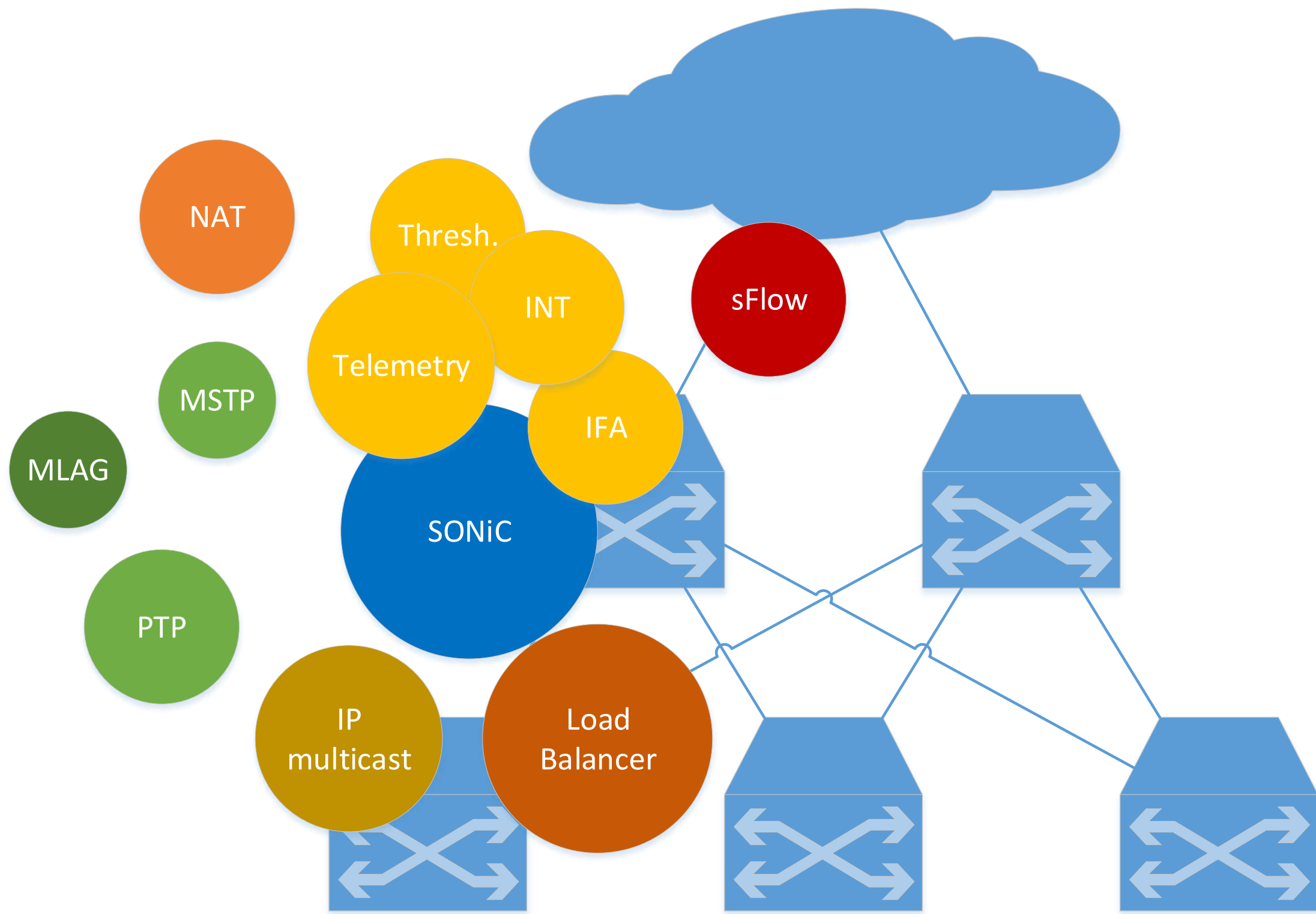
More and more features coming to SONiC

- Some are specific to the use case
- Some are specific to the platform
- Some are experimental or not mature enough

# State of SONiC Today



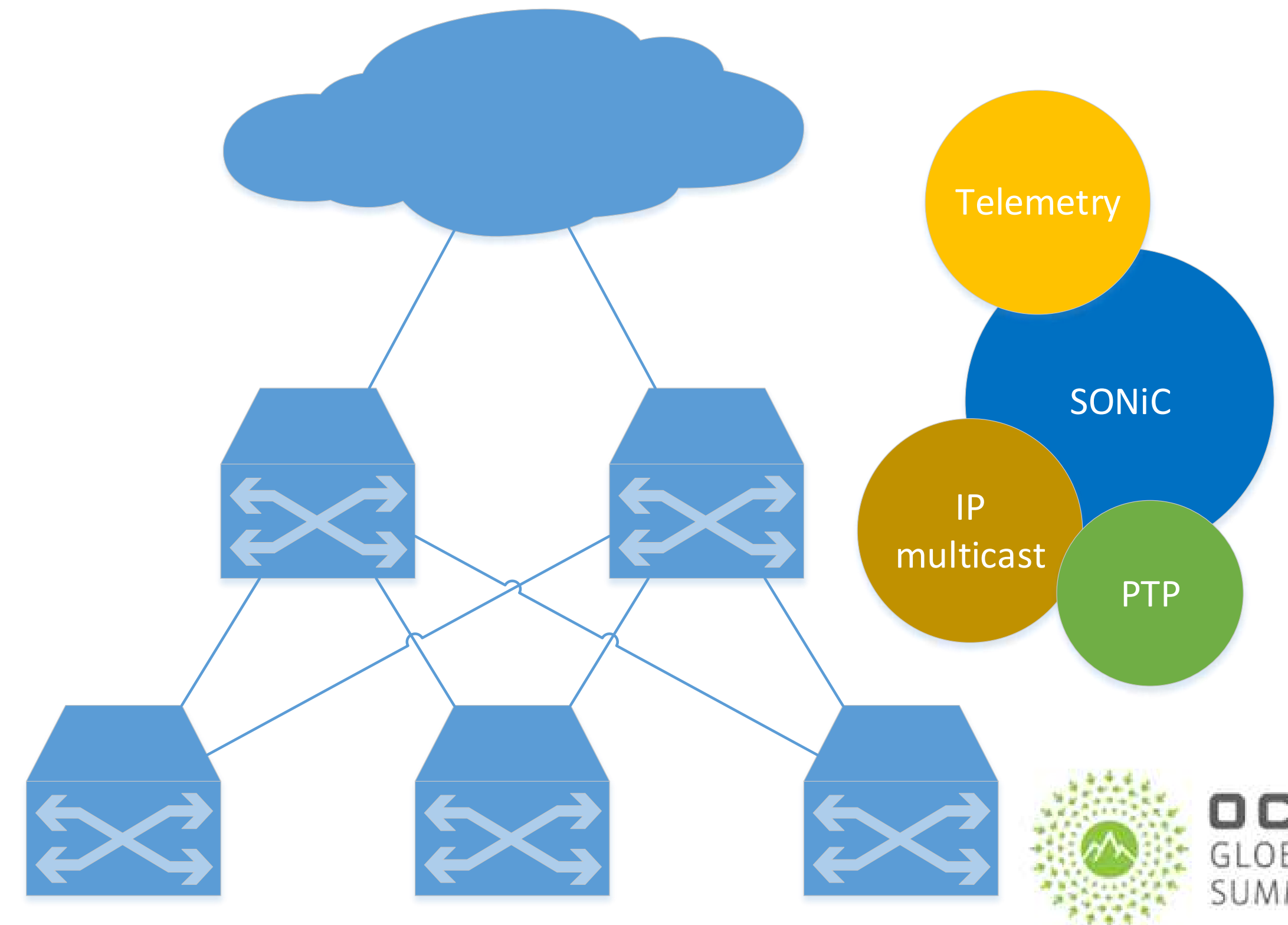
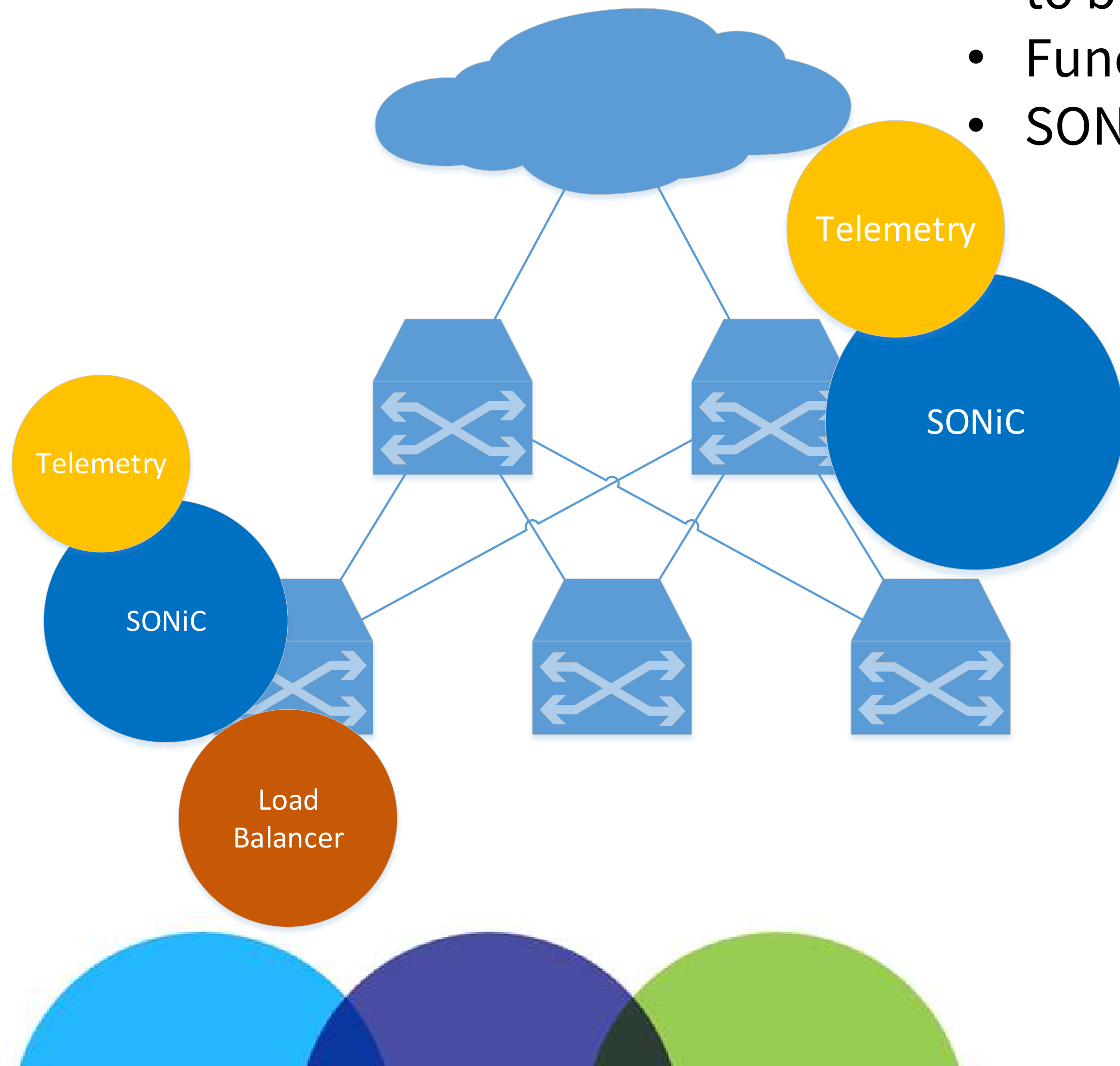
- Troublesome to maintain
- Prone to break
- Not scalable



# Case for extendable SONiC



- **Rock solid** SONiC image with the capability to be extended
- Functionality added on demand
- SONiC+ applications behave **natively**



# How SONiC will enable native apps



Distributed Orchestration

Seamless Integration

Modular Development

Gradual Acceptance

# Gradual Acceptance



How Linux brings in new features:

- Start as a module
- Become popular
- Become stable
- Be accepted into the main codebase

SONiC community needs to follow the same guideline:

- New “modules” shouldn’t be a part of the core image
- New “modules” shouldn’t delay the SONiC release cycle
- Even some of existing the SONiC features should become optional
- The “modules” can become a part of the core image if the community decides so

Distributed Orchestration

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# Modular Development

The concept of SONiC SDK:

- The two docker images provided with each next SONiC release

The SDK Docker:

- Easy development without the need to build a core image
- Contains all dev packages built with the core image

The Distribution docker

- Contains all libraries without the dev components
- Provides a base for distributing the SONiC application

SDK docker

Distribution  
docker

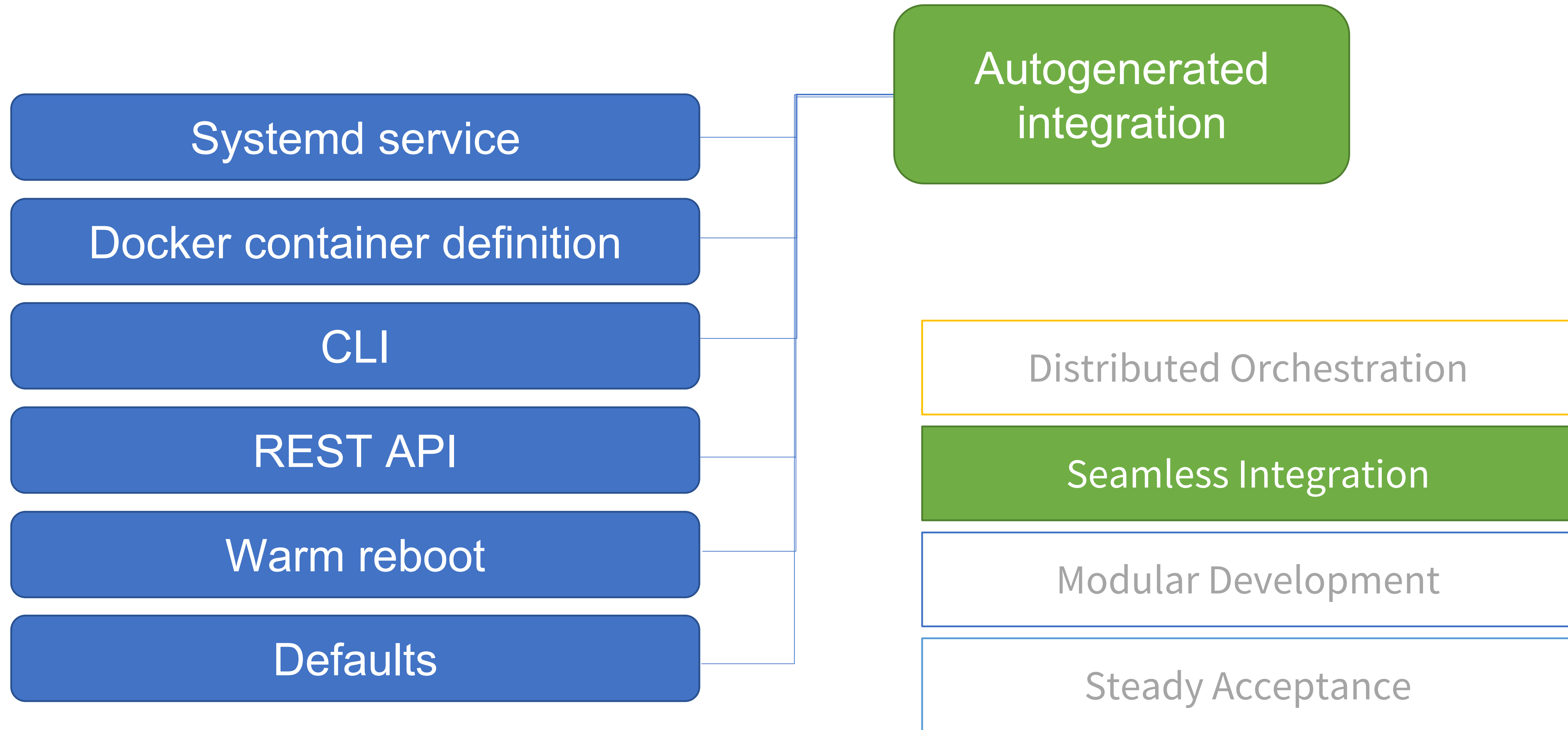
Distributed Orchestration

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# Seamless integration



Systemd service

Docker container definition

CLI

REST API

Warm reboot

Defaults

Autogenerated  
integration

Distributed Orchestration

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Steady Acceptance



# Distributed Orchestration



Why a distributed orchestration is beneficial:

- Enables the SONiC extensibility on the SAI layer
- Failsafe – custom addons can fail, but the switch stays operational
- Convenient for partial upgrades

Distributed Orchestration

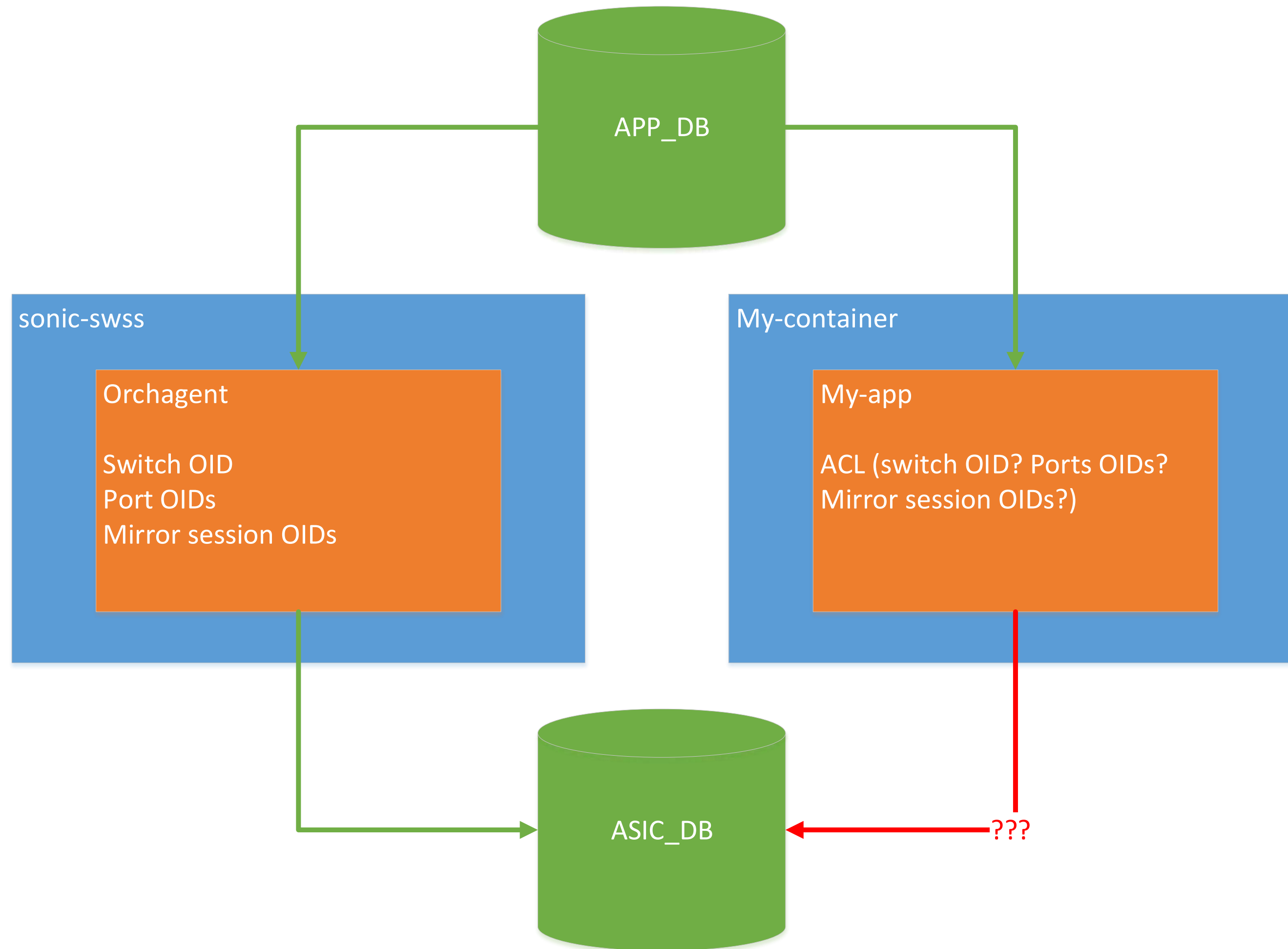
Seamless Integration

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# Distributed Orchestration



Distributed Orchestration

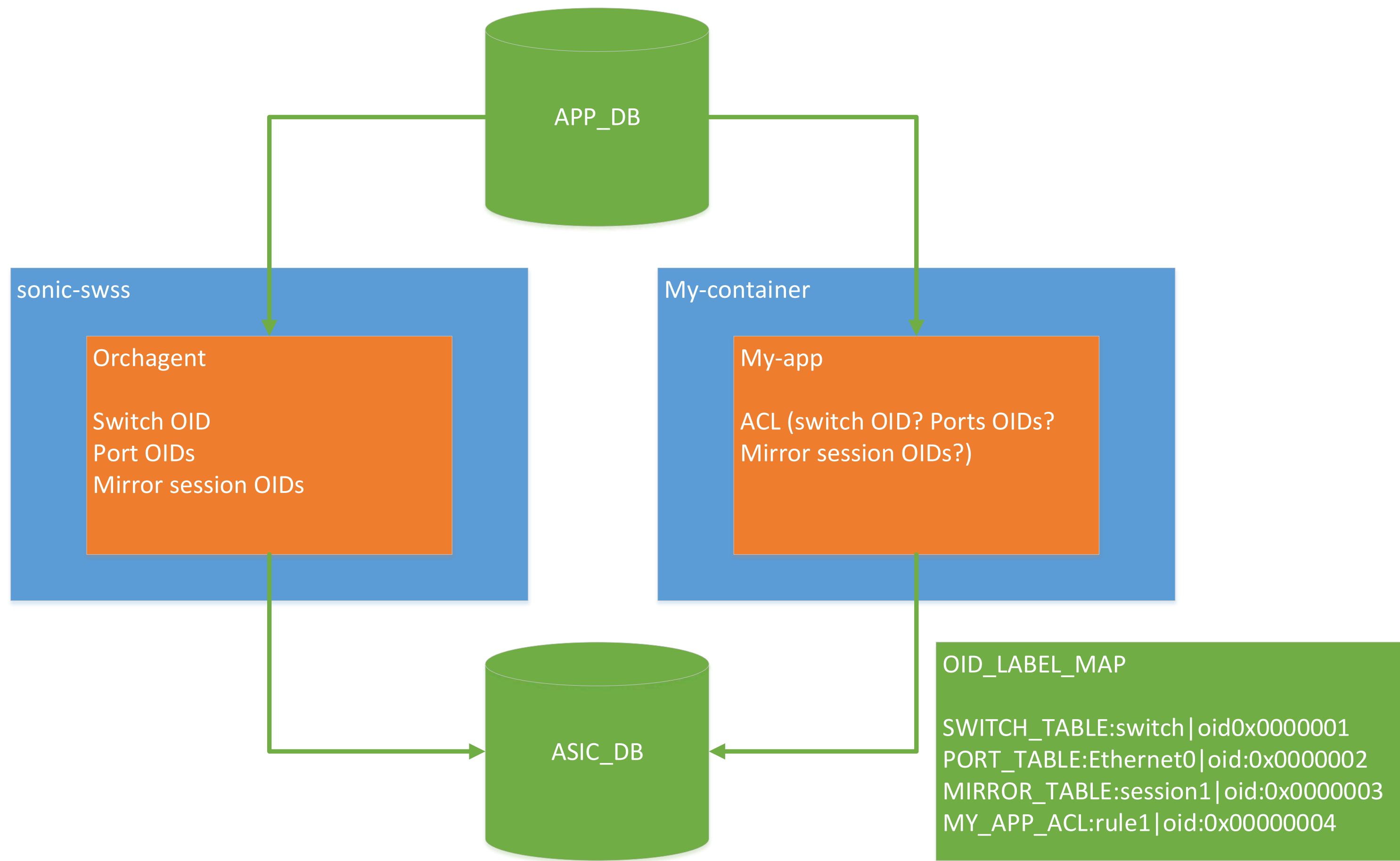
Seamless Integration

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# Distributed Orchestration



Distributed Orchestration

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# Call to Action

- A new development flow for the future scalable SONiC
- Follow up on the SONiC Application Workgroup

Mailing list: <https://groups.google.com/d/forum/sonic-application-workgroup>

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