Dancing with System of Records

ESNOG27

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Network to Code

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Agenda

Source of Truth, the myth

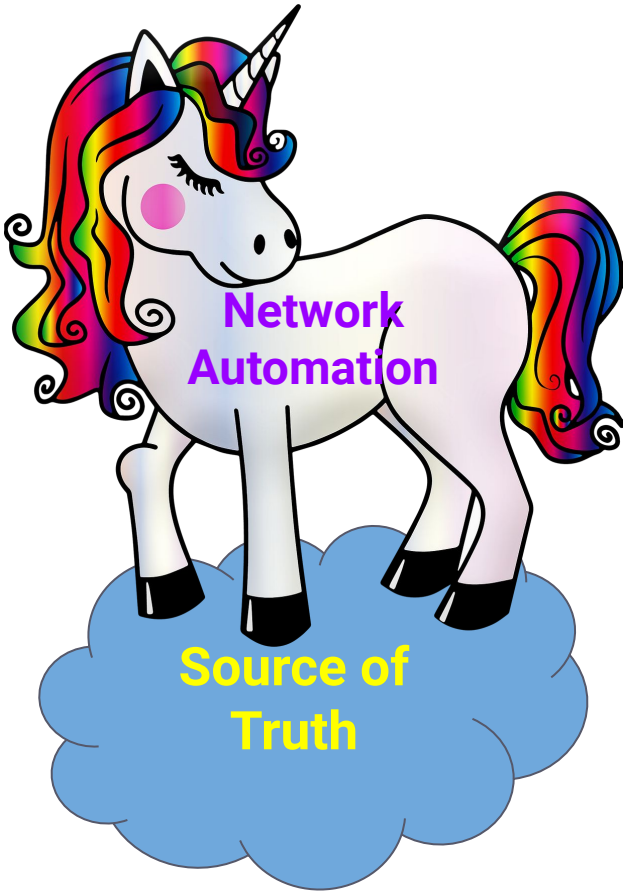
Diffsync

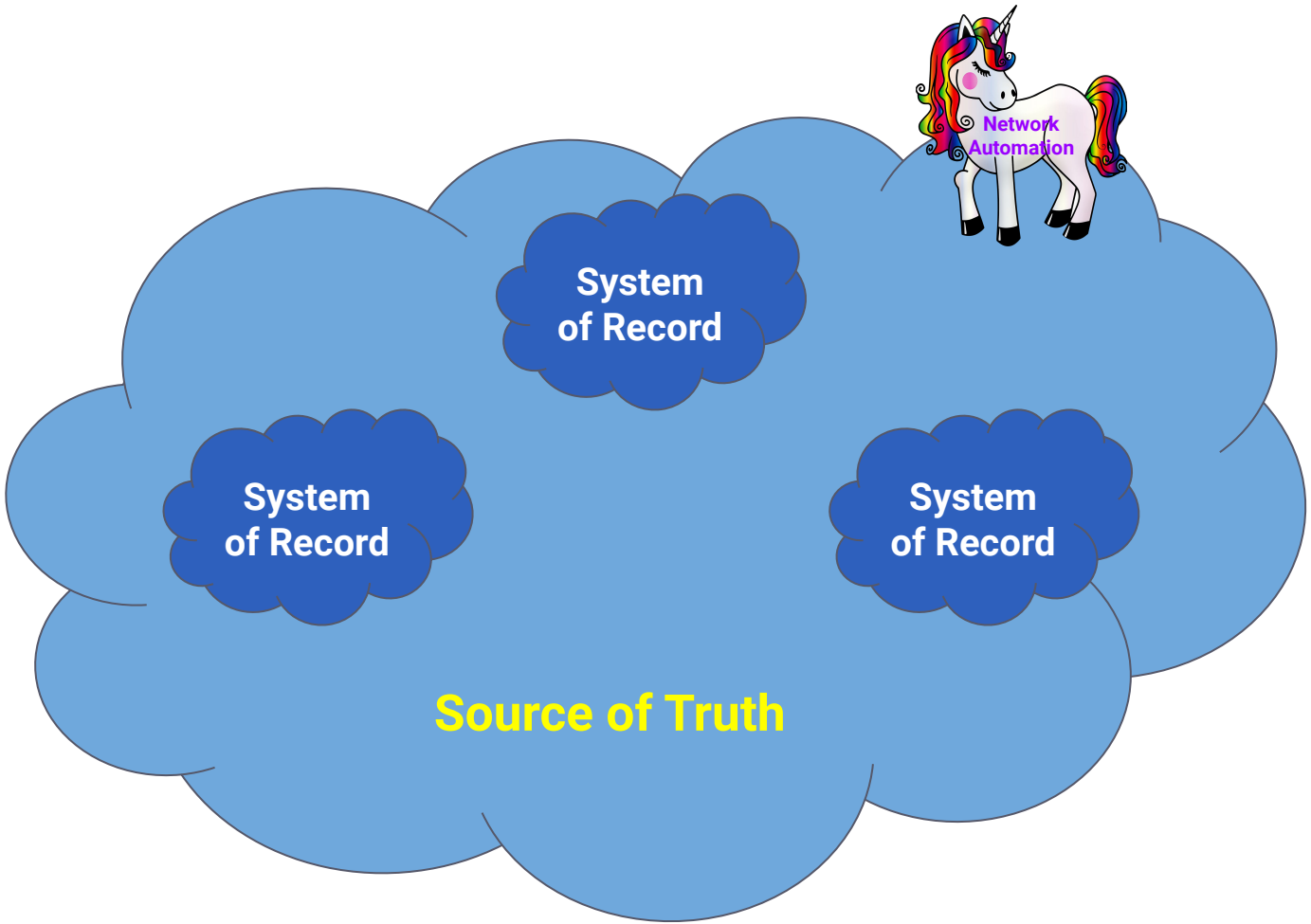
Show me the code

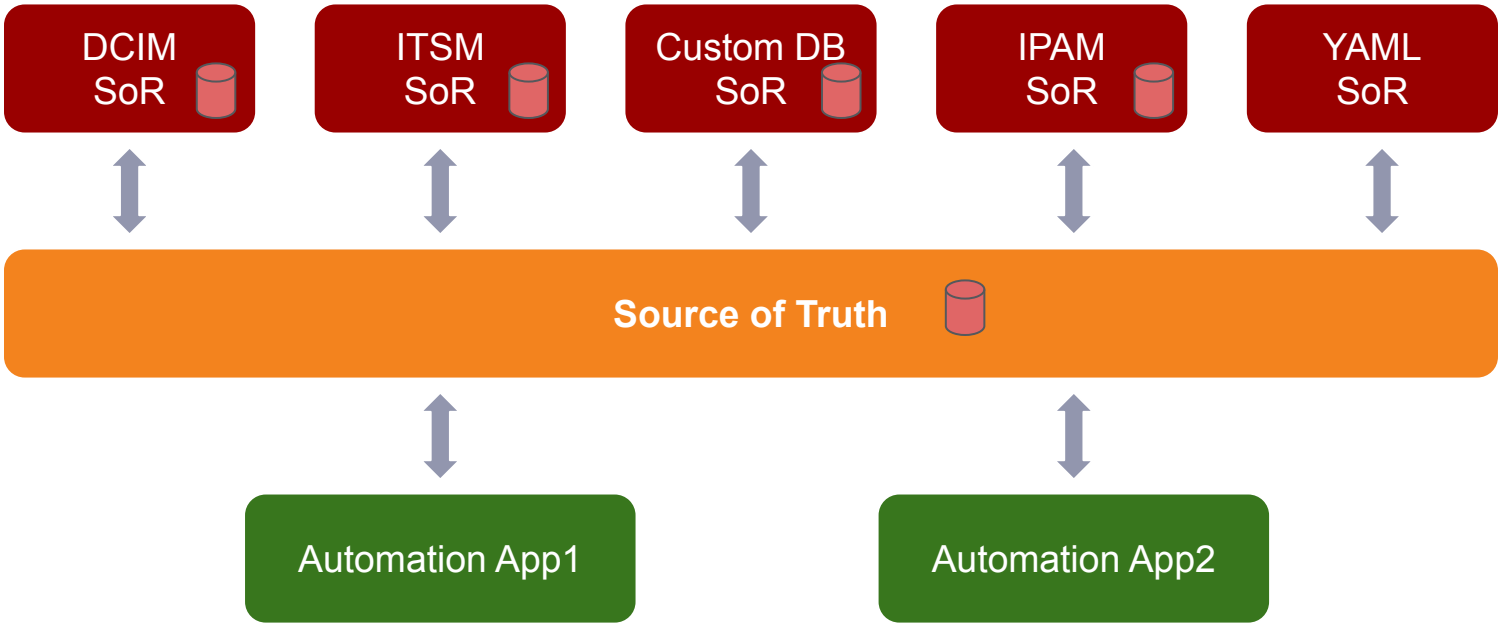
Nautobot SSoT

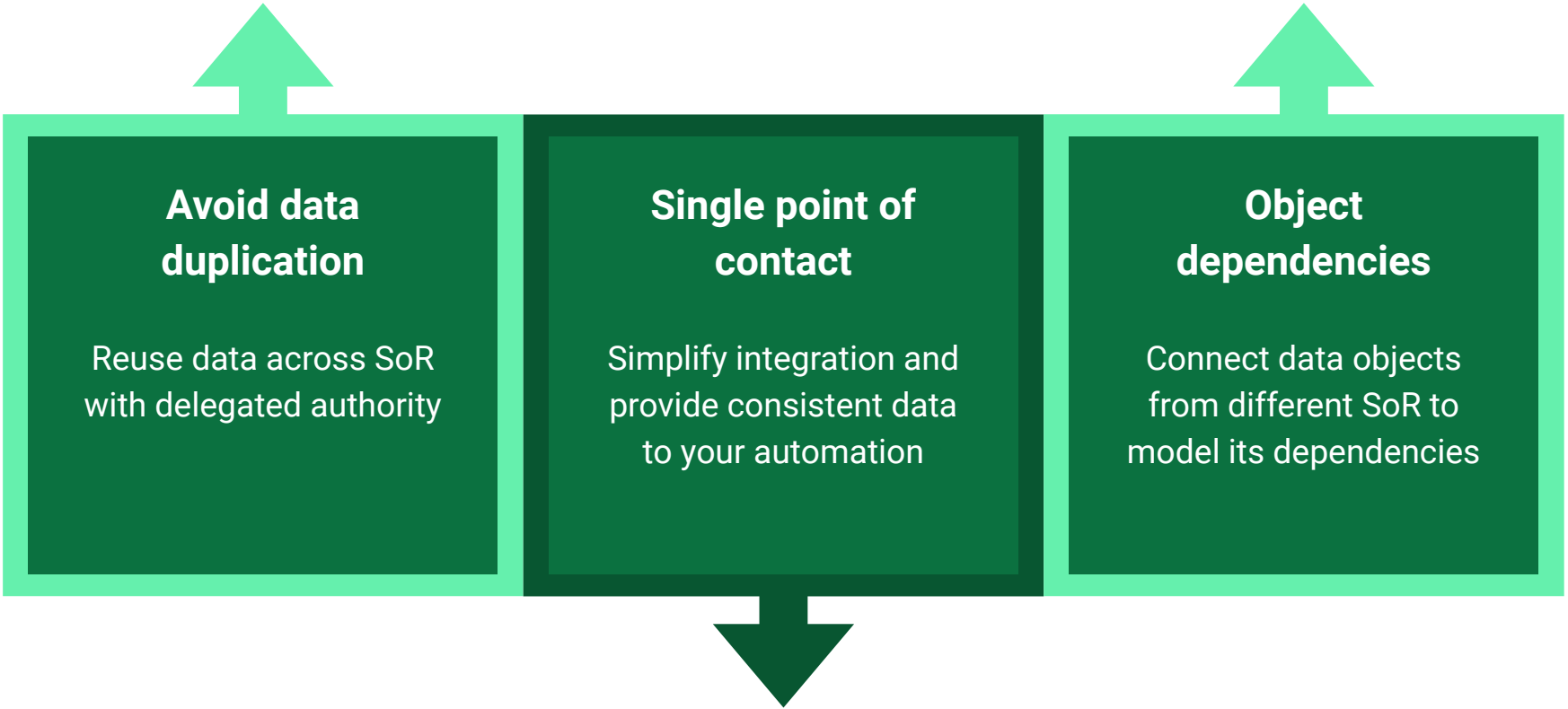
Wrap up

Source of Truth, the myth


Network
Automation
Source of
Truth


Network
Automation
System
of Record
System
of Record
System
of Record
Source of Truth


DCIM SoR
ITSM SoR
Custom DB SoR
IPAM SoR
YAML SoR
Source of Truth
Automation App1
Automation App2


Avoid data duplication
Reuse data across SoR with delegated authority
Single point of contact
Simplify integration and provide consistent data to your automation
Object dependencies
Connect data objects from different SoR to model its dependencies

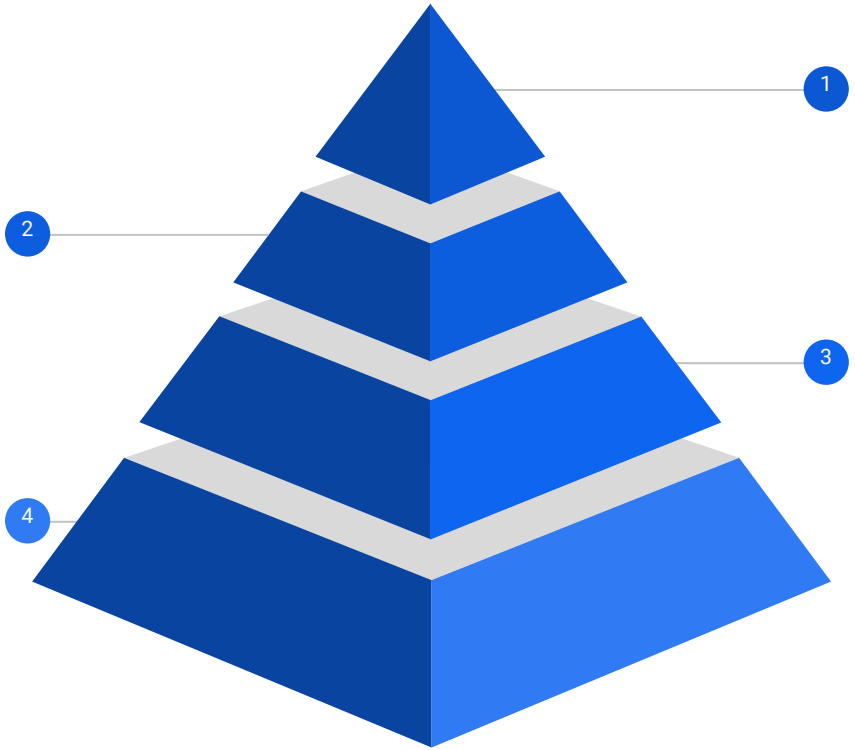
What are the challenges?

Keep data in sync

How often do we have to sync data?
What could we do when they are not in sync?

Different data models

Partially or complete, that means custom mapping and to provide linking, identifiers are needed



Distributed Authority

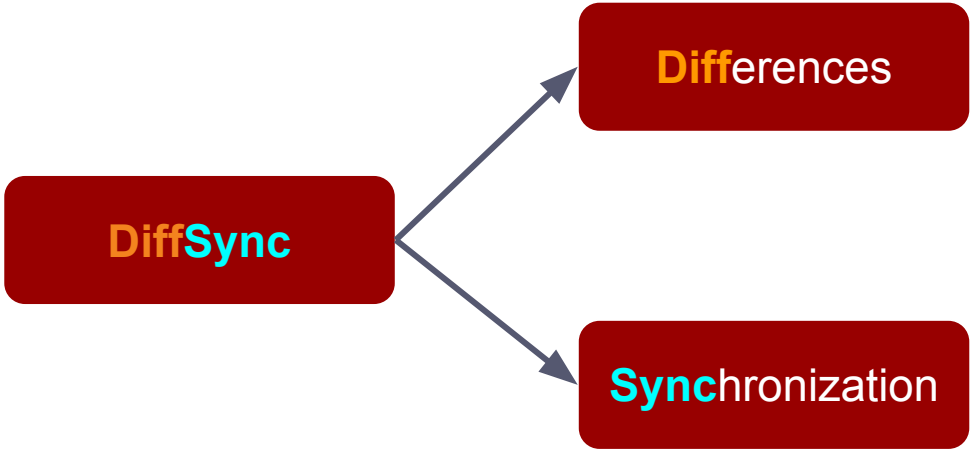
Each SoR could have a specific authority for some data set

Custom methods

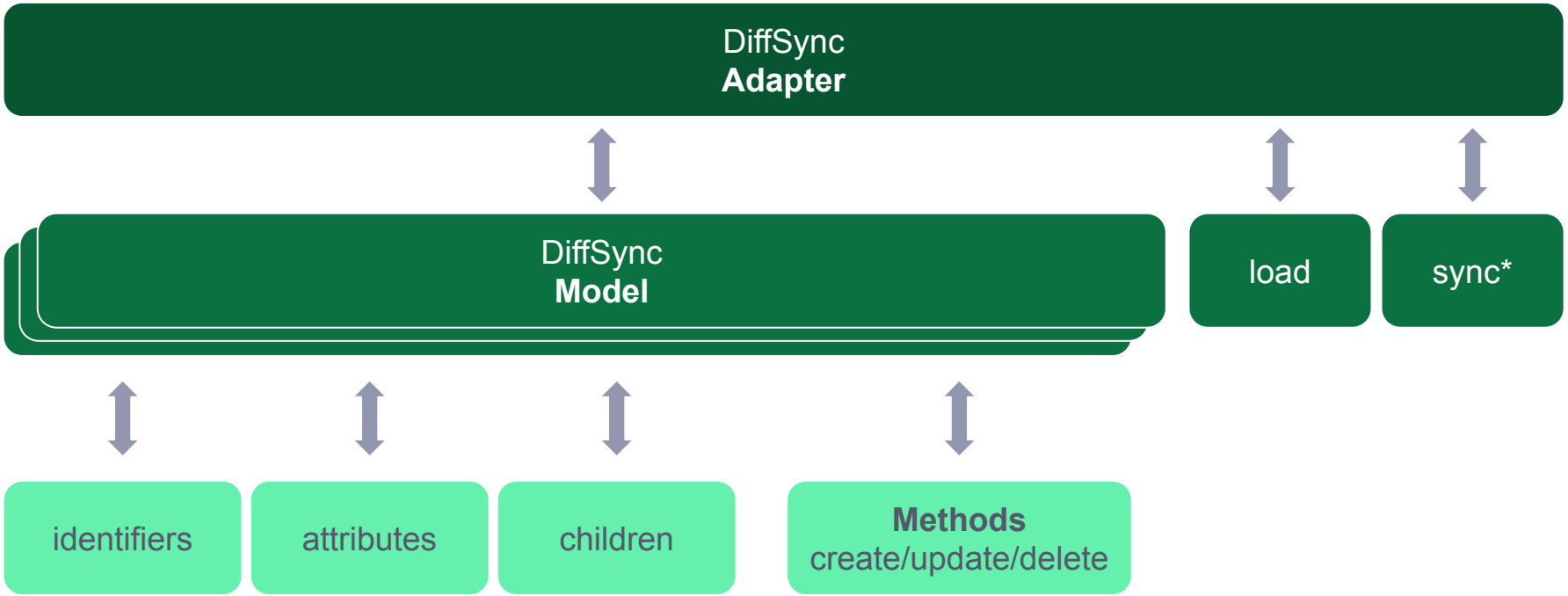
Each SoR would have diverse methods for interacting, retrieving and displaying data

Diffsync
https://github.com/networktocode/diffsync

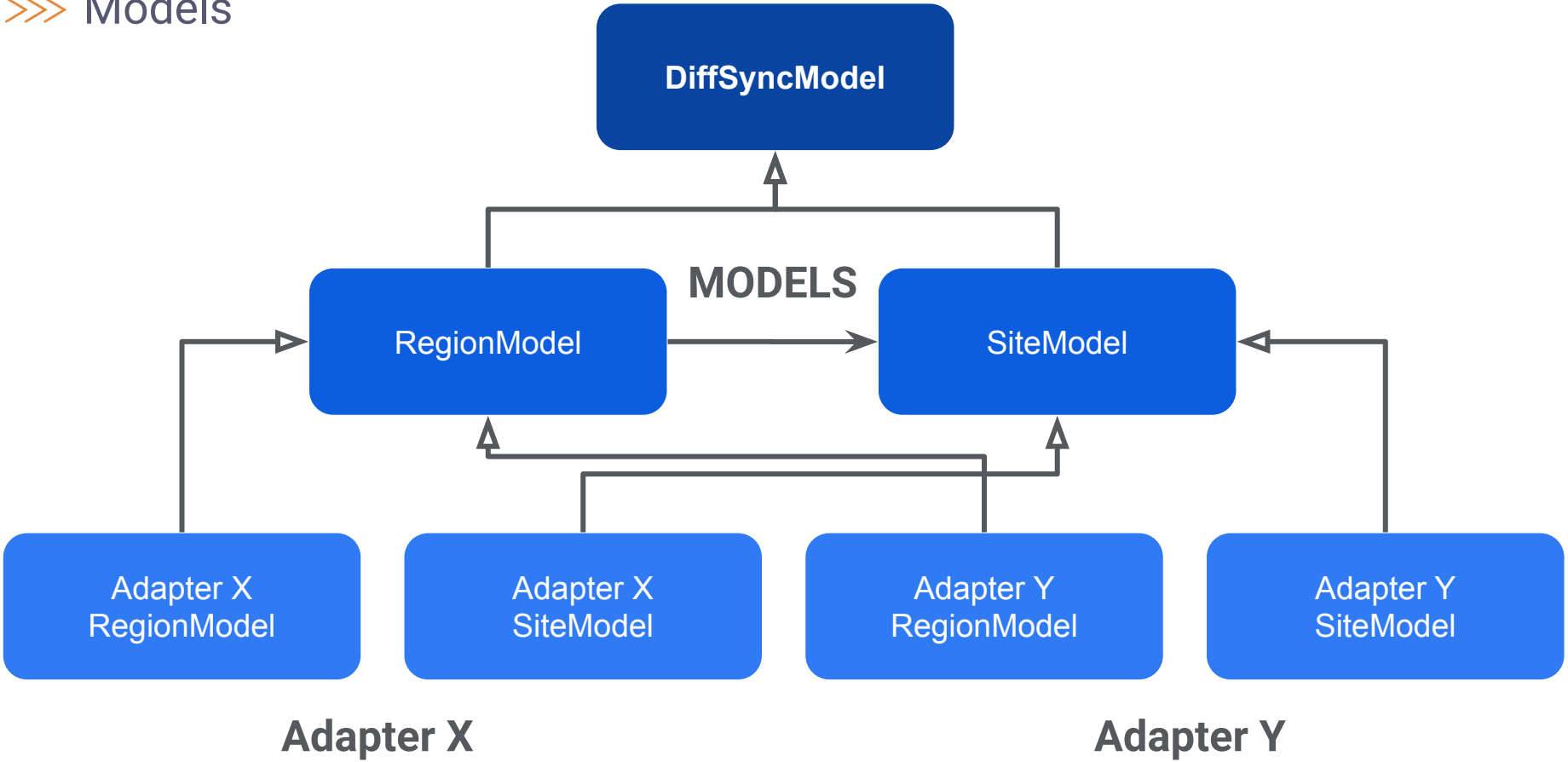
>>> Easy naming



>>> Adapters


DiffSync
Adapter
DiffSync
Model
load
sync*
identifiers
attributes
children
Methods
create/update/delete

>>> Models

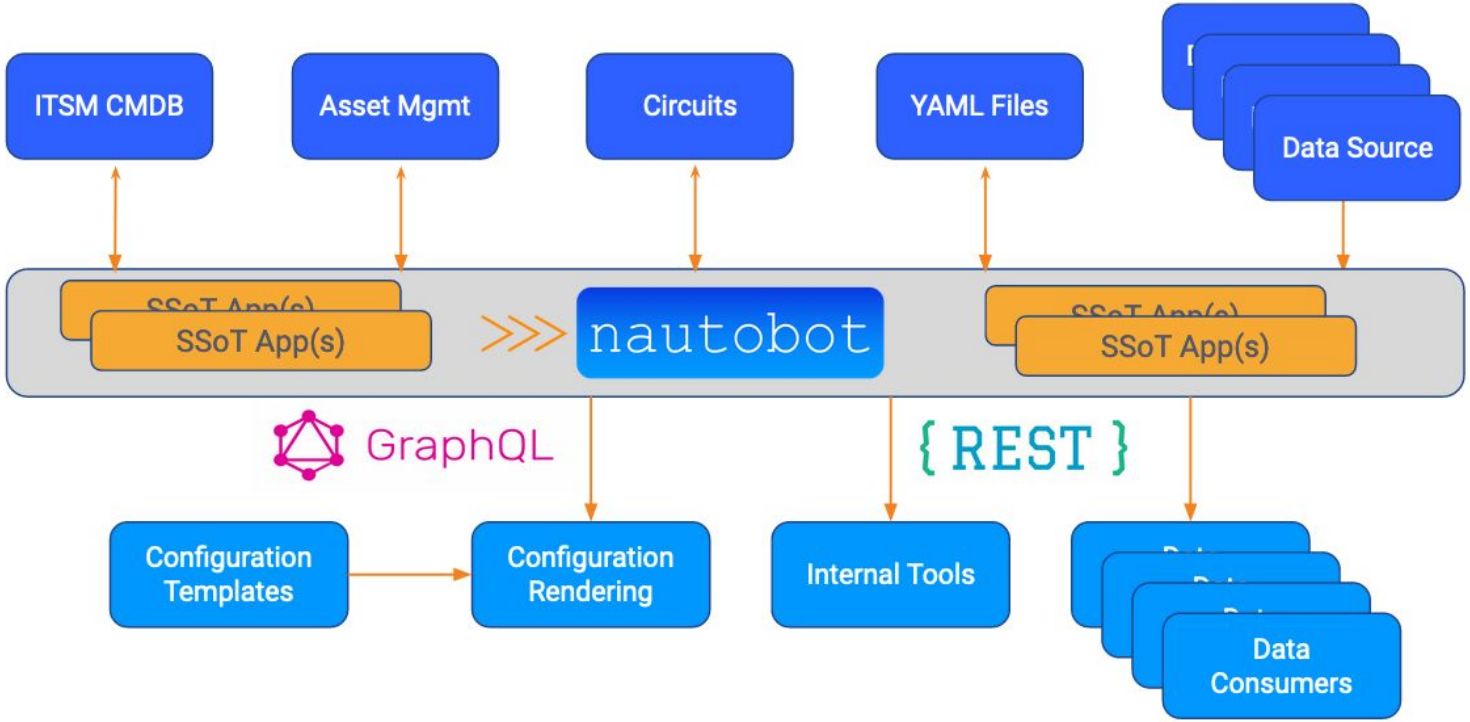

DiffSyncModel
MODELS
RegionModel
SiteModel
Adapter X
RegionModel
Adapter X
SiteModel
Adapter Y
RegionModel
Adapter Y
SiteModel
Adapter X
Adapter Y

Show me the code

https://github.com/chadell/playground-diffsync
https://demo.nautobot.com

Nautobot SSoT
nautobot

>>> Nautobot SSoT



Ref: https://blog.networktocode.com/post/nautobot-ssot-plugin/

>>> SSoT Dashboard

Single Source of Truth

Data Sources

Example Data Source — 2
Example "data source" Job for loading data into Nautobot from another system. ▶ Sync

CloudVision — 0
Sync system tag data from CloudVision to Nautobot ▶ Sync

Data Targets

Example Data Target — 1
Example "data target" Job for syncing data from Nautobot to another system ▶ Sync

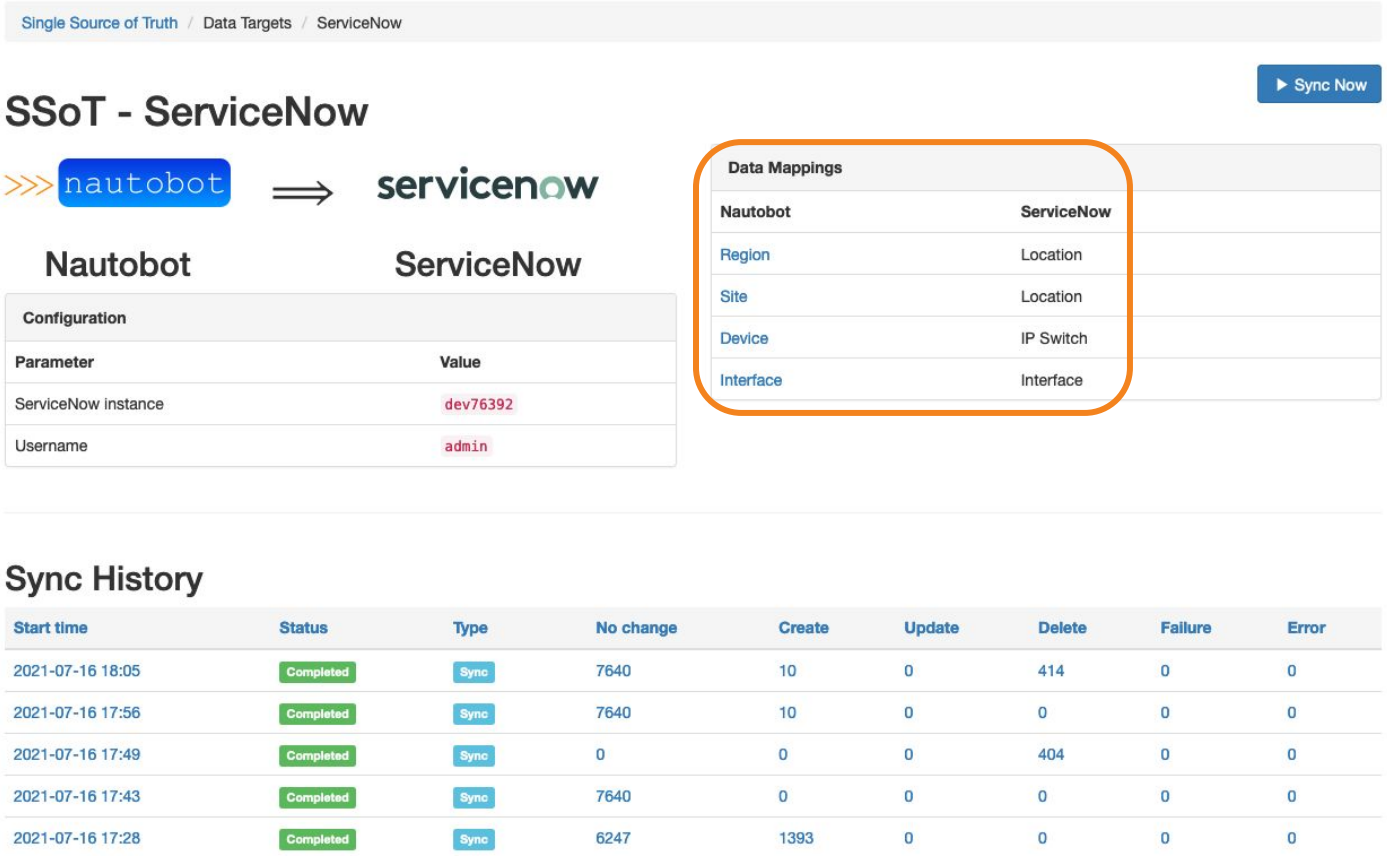
CloudVision — 2
Sync tag data from Nautobot to CloudVision ▶ Sync

ServiceNow — 11
Synchronize data from Nautobot into ServiceNow. ▶ Sync

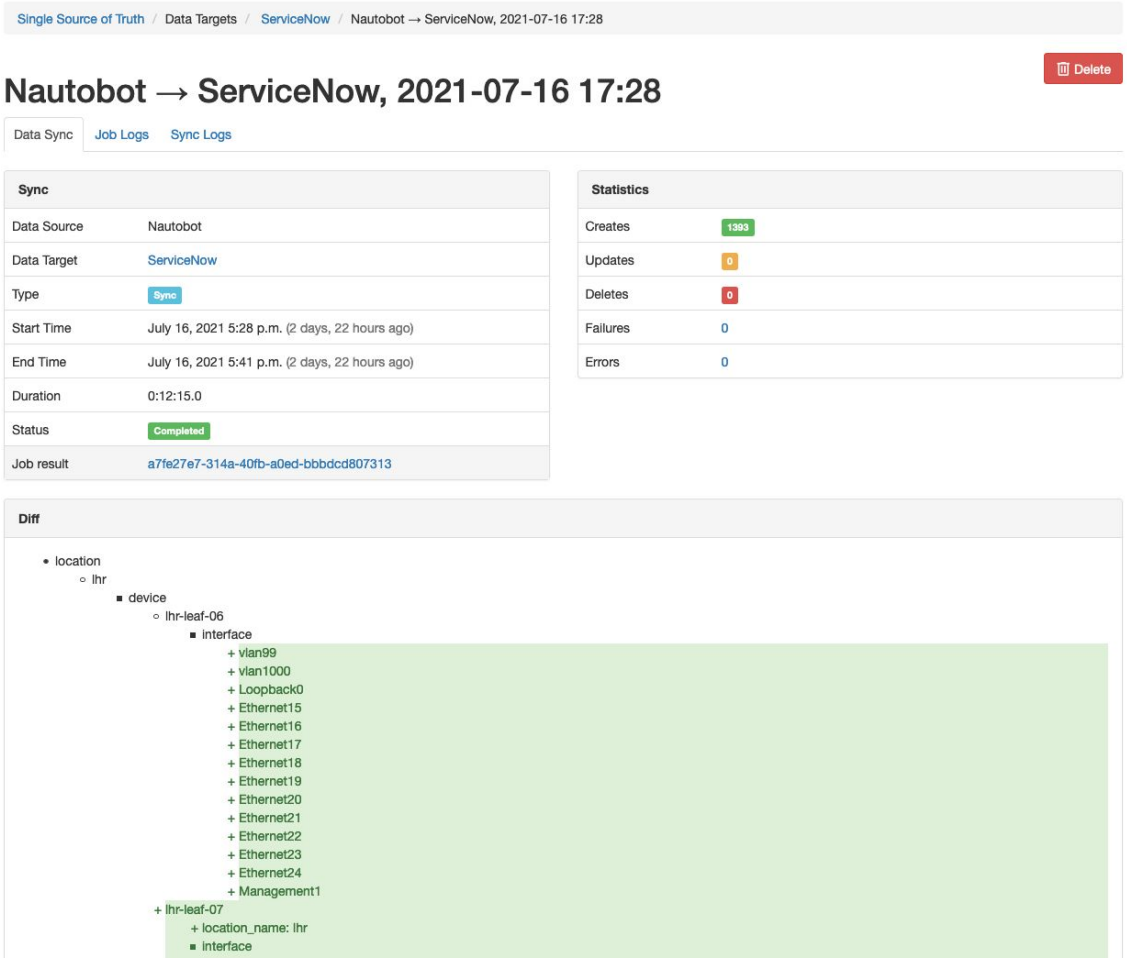
Source	Target	Start time	Status	Type
Nautobot	ServiceNow	2021-07-16 18:05	Completed	Sync
Nautobot	ServiceNow	2021-07-16 17:56	Completed	Sync
Nautobot	ServiceNow	2021-07-16 17:49	Completed	Sync
Nautobot	ServiceNow	2021-07-16 17:43	Completed	Sync
Nautobot	ServiceNow	2021-07-16 17:28	Completed	Sync
Nautobot	ServiceNow	2021-07-16 17:23	Failed	Sync
Nautobot	ServiceNow	2021-07-14 22:07	Failed	Sync
Nautobot	ServiceNow	2021-07-14 20:25	Failed	Sync
Nautobot	ServiceNow	2021-07-14 20:09	Failed	Sync
Nautobot	ServiceNow	2021-07-14 20:08	Failed	Sync

All History

>>> Example: ServiceNow

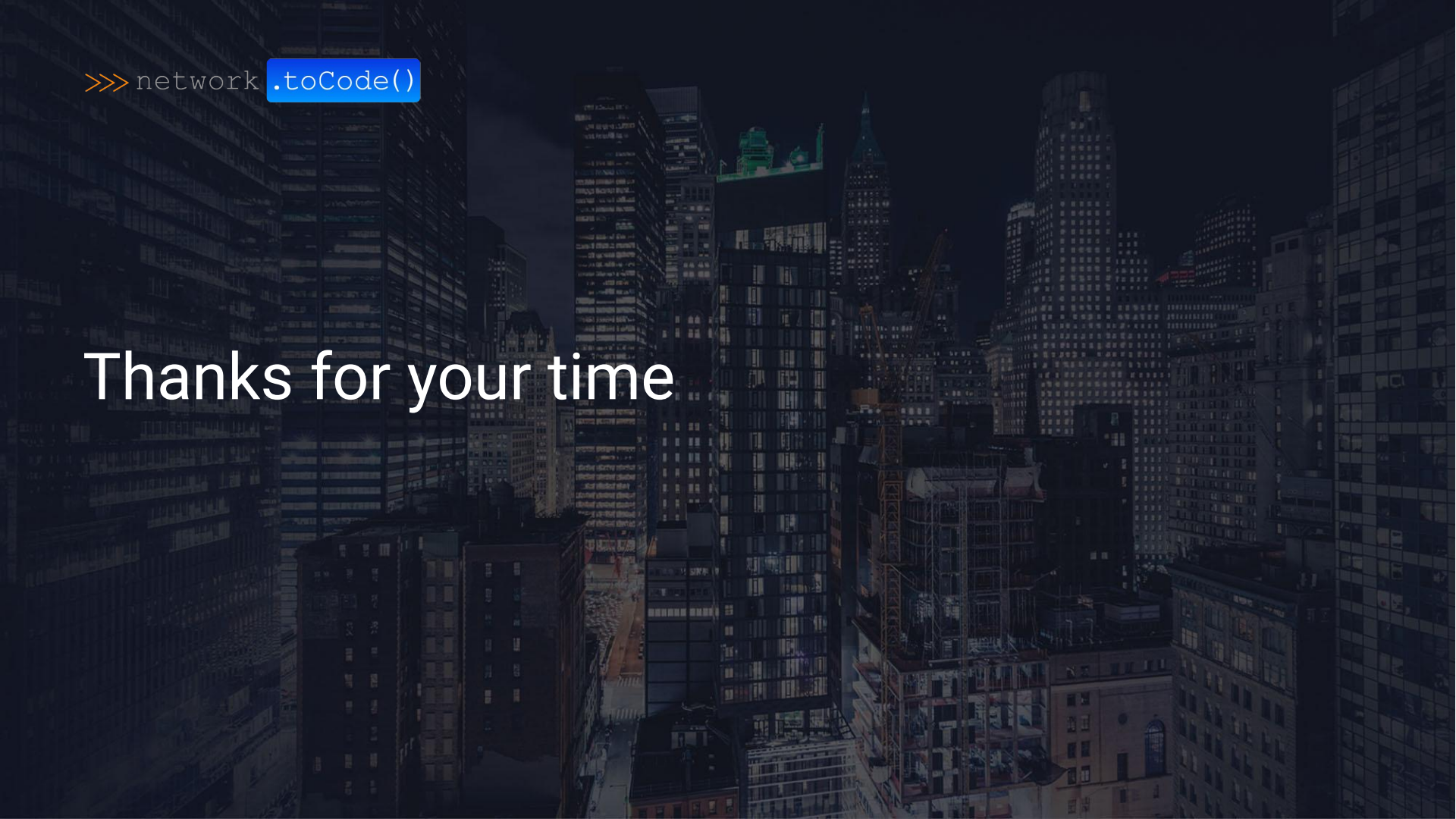


>>> Example: ServiceNow



Wrap up

01	**Diffsync is not limited to one use case**	• Tested in Ansible Module creation • Importer of Database with custom conversion. Example: nautobot-plugin-netbox-importer
02	**Diffsync provides advanced options**	• Easy to extend, create your own Diff logic • Flags to customize behaviour • Used together with your applications you have access to any Python object
03	**Nautobot SSoT integrations**	• Help you to simplify data sync between multiple System of Records • A lot of them are currently being built!


>>> network .toCode()
Thanks for your time