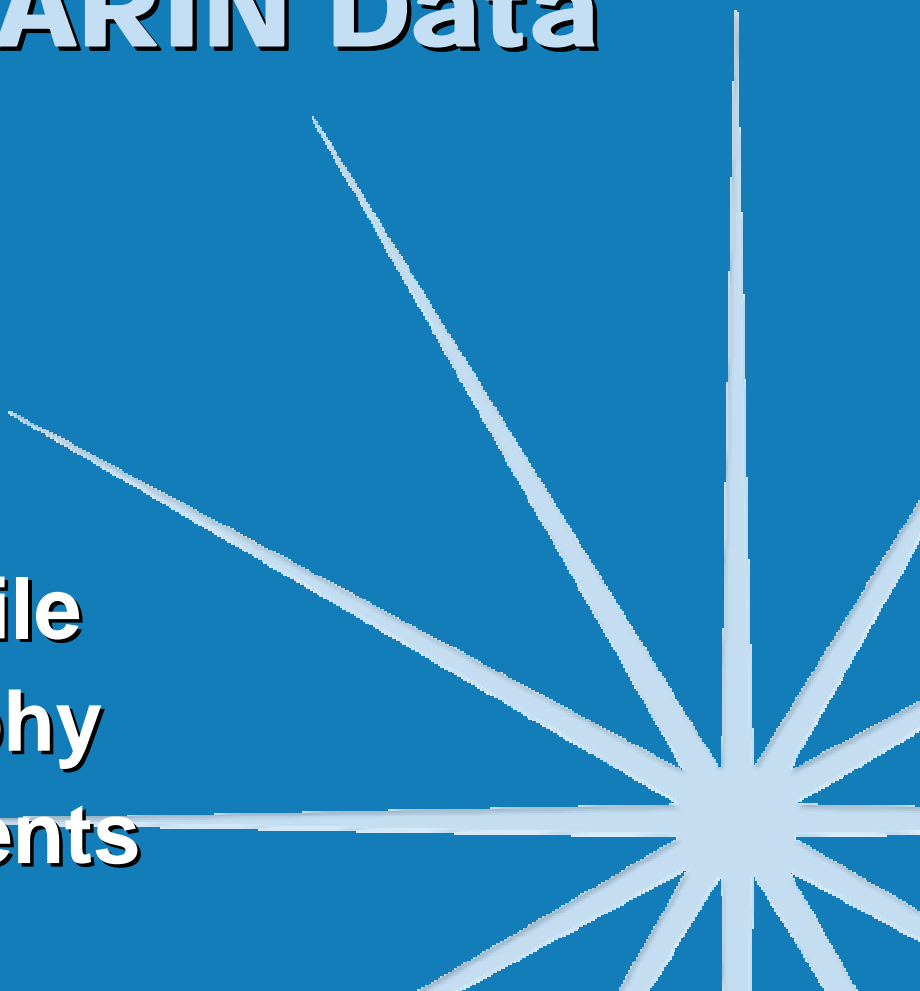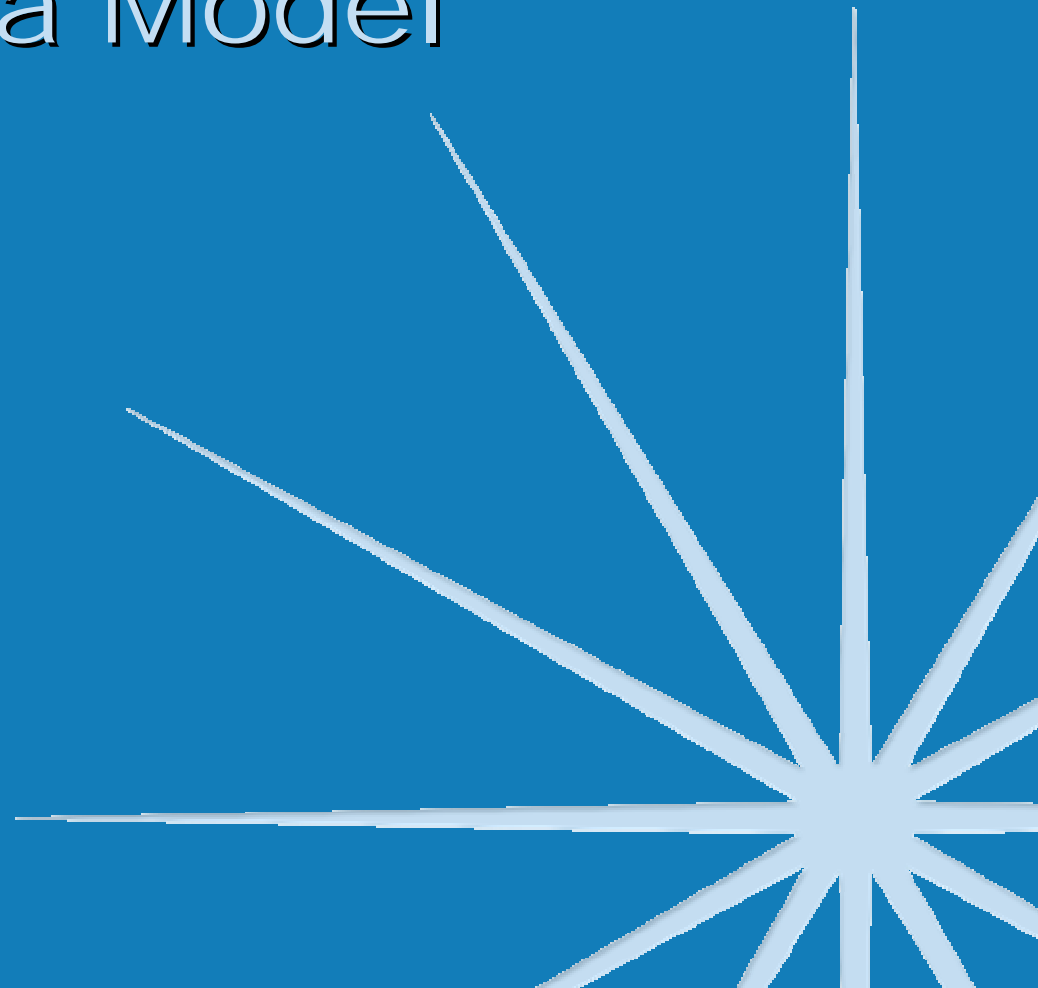# Managing Your ARIN Data

Leslie Nobile
Cathy Murphy
Cathy Clements

Introduction

* **Review of the ARIN Data Model**
* **How to Maintain Your Data**
* **WHOIS Examples**

The ARIN Data Model

Overview

* **Design Philosophy**
* **Definitions**
* **Organizations**
* **POCs**

ARIN's Function

✳ ARIN allocates *number resources.*

✳ *Number Resources* is a collective term that refers to the Internet Protocol numbers that ARIN allocates and over which it provides stewardship.

   ► IPv4 Addresses
   ► IPv6 Addresses
   ► Autonomous System Numbers

ARIN Registration System Design Philosophy

✴ Stewardship requires a consistent, cohesive understanding of

- ► **who holds the resources,**
- ► **who is responsible for their maintenance, and**
- ► **how those resources are being utilized.**

ARIN Registration System Design Philosophy

✴ **Utilization analysis is done based on all of the resources held by an organization.**

✴ **In the case of new allocations, utilization is analyzed by how an organization has managed the resources allocated to it by its upstream.**

Organizations

* **An entity that is registered in the ARIN database**

* **Uniquely identified by its Organization ID**

* **An organization is defined by its**
  * Organization Name
  * Physical Address
  * Points of Contact

Examples of Organizations

* **Businesses**
* **Government agencies**
* **Educational institutions**
* **Sub-entities of larger organizations**

Organizations

✴ **Why have them?**

► It's a tool of how ARIN applies its stewardship responsibility.

✴ **Specific reasons:**

► Get resources from ARIN

► Maintain own in-addrs

► Receive reallocations from upstreams

Organizational Actors

* Organizations exist on paper. They cannot act; they cannot request resources; they cannot update addresses.

* All actions WRT ARIN's registration system are taken by people, who through their identity as Points of Contact (POCs), may initiate actions to an Organization or resources held by an Organization.

Points of Contact (POCs)

* A POC is a person who may act as an individual or through a role account.
* A POC may be associated with an organization or number resource.
* A POC may act (or not) depending upon how he or she is connected to an organization or the resources of an organization.

POC Functions

✳ **Authorizing POC Functions** – when serving in these functions, POCs may take some defined set of actions.

▶ Administrative POC

▶ Technical POC

✳ **Non-authorizing POC functions** – when serving in these functions, POCs provide an informational function only.

▶ Abuse POC

▶ NOC POC

Administrative POC

* Its purpose is to provide oversight of the Organization record and all of its resources
* It can only be associated with an Organization
* There can be only **one**!
* It is the only POC permitted to
  * ►Update the Organization record
    * ► Postal Address
    * ► Public Comment
    * ► Referral Server
    * ► POCs associated with the Organization
  * ►Return resources

Technical POC

✷ Technical POCs are the work-horse POCs, the person or persons who provide day-to-day management of a resource.

✷ There are two types of Technical POCs:

▶ **Org Techs**: Each Organization must have one or more technical POCs.

▶ **Resource Techs**: Org Admin and Org Tech POCs may place *optional* Technical POCs directly on the resource.

Resource Tech POC

* **Change the attributes of the resource**
  - ►NAME of the number resource (AS Name or Net Name) - Only for resources received directly from the IP registry
  - ►Public comments
  - ►Add or remove POCs associated with the resource (Abuse, NOC, and other Resource Techs)
* **Additional network attributes to be changed**
  - ►Name servers
  - ►If an allocation or reallocation, can submit further delegations
* **Having one does not prevent the Org Tech from also making changes**

Org Tech POC

* **Everything a Resource Tech can do, plus:**
  * ► Request new resources
  * ► Remove any or all of the Resource Techs

* **Org Tech has access to resources by virtue of its relationship to the Org holding the resource.**
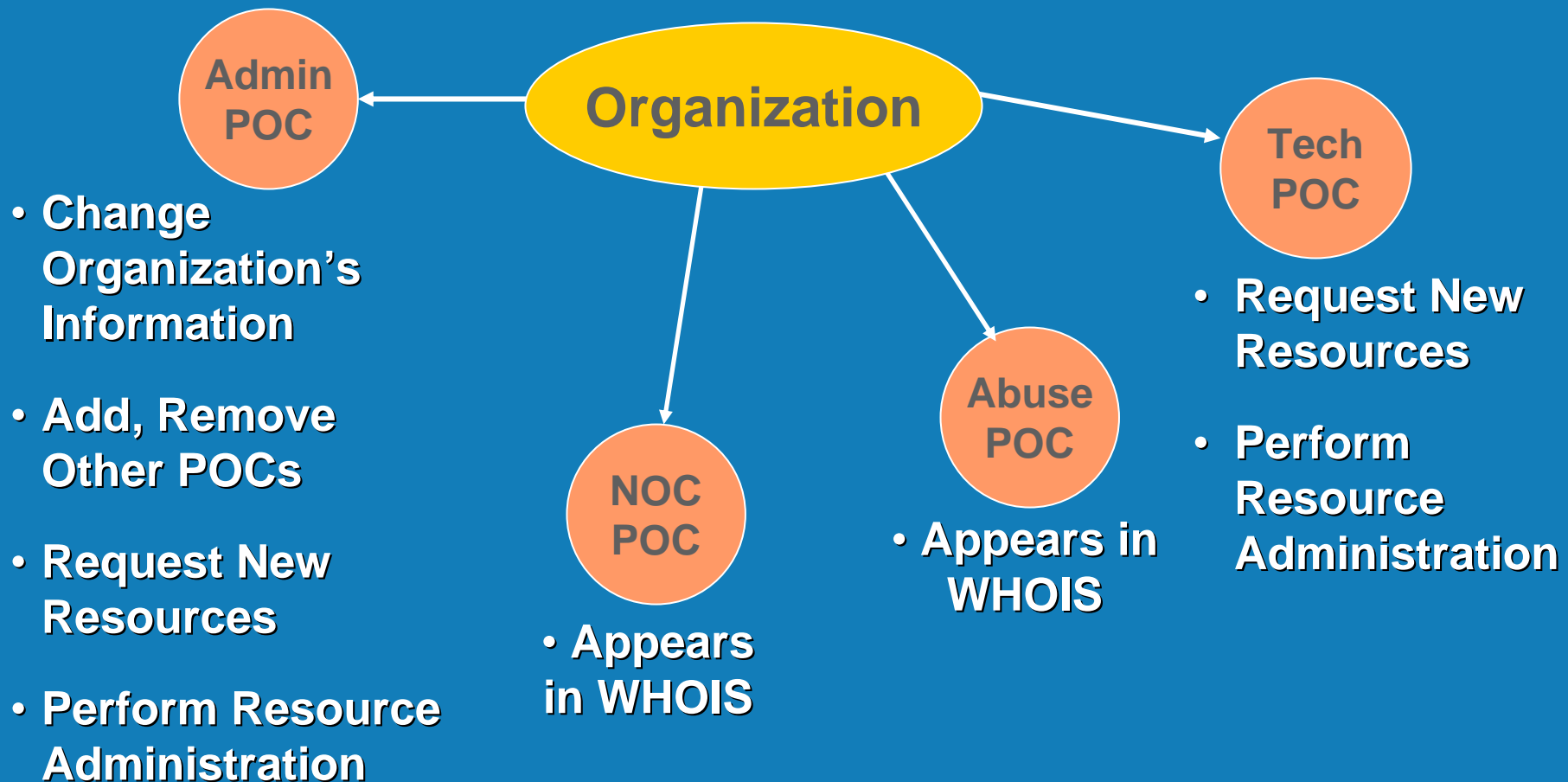
POC Authority at a Glance

ARIN — American Registry for Internet Numbers

	Admin POC	Org Tech POC	Resource Tech POC
Update Org Information	X		
Add or Remove Org POCs	X		
Return Resources	X		
Request Resources	X	X	
Perform Resource Administration ► Update Resource Information ► Sub-delegate Networks ► Add or Remove Resource Tech POCs	X	X	X

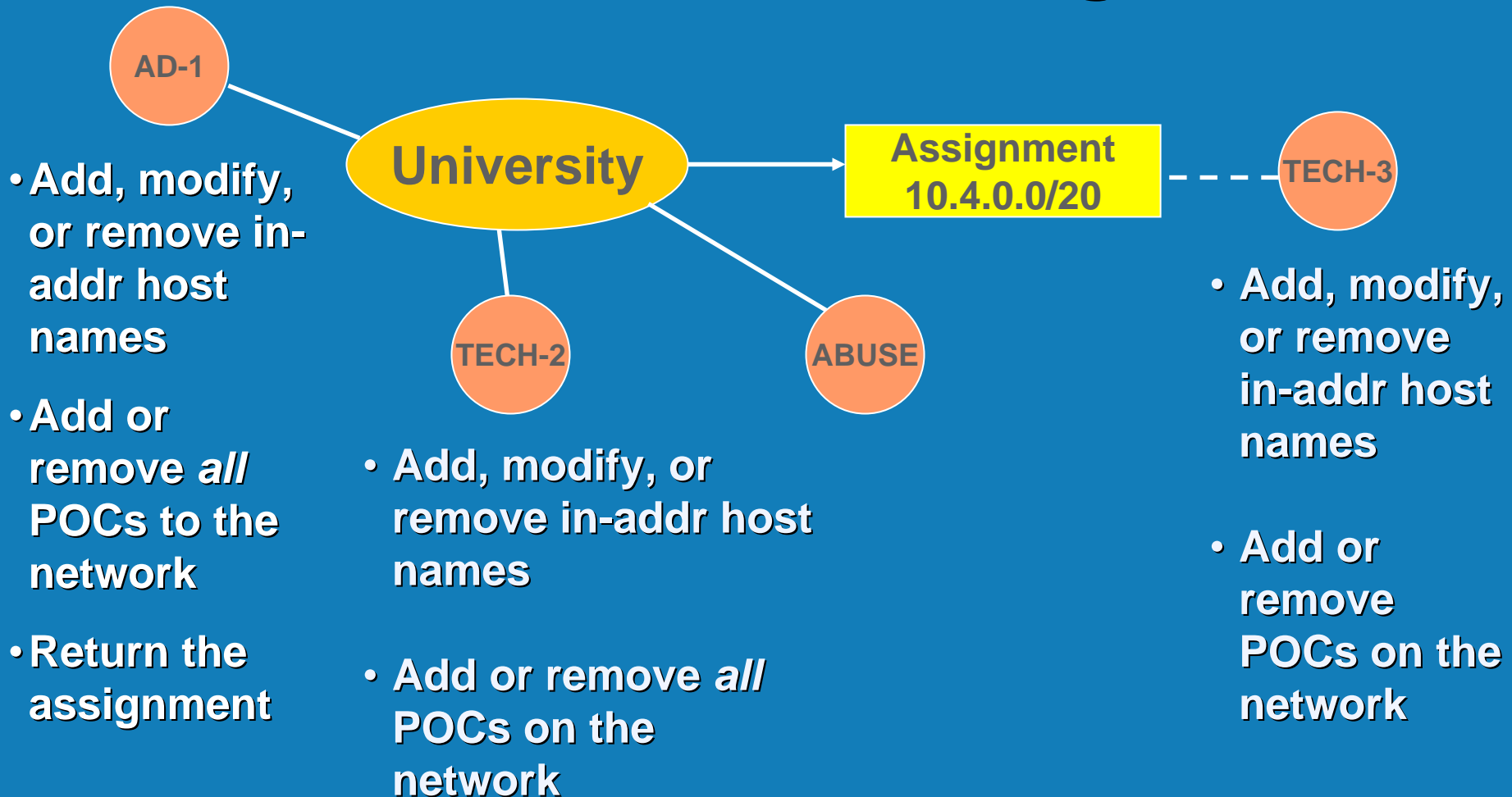# Network Terms

* Terms are relative to the network referenced.
* **Direct** resources are received from ARIN or its predecessors.
* **Upstream** is any organization that further sub-delegates its address space.
* **Downstream** is any organization that receives address space.

The Organization Record

Organization

Admin POC

Tech POC

NOC POC

Abuse POC

- **Change Organization's Information**
- **Add, Remove Other POCs**
- **Request New Resources**
- **Perform Resource Administration**

- **Appears in WHOIS**

- **Appears in WHOIS**

- **Request New Resources**
- **Perform Resource Administration**

Authorization for Allocations

AD-1

ISP

Allocation 10.9.0.0/17

TECH-3

TECH-2
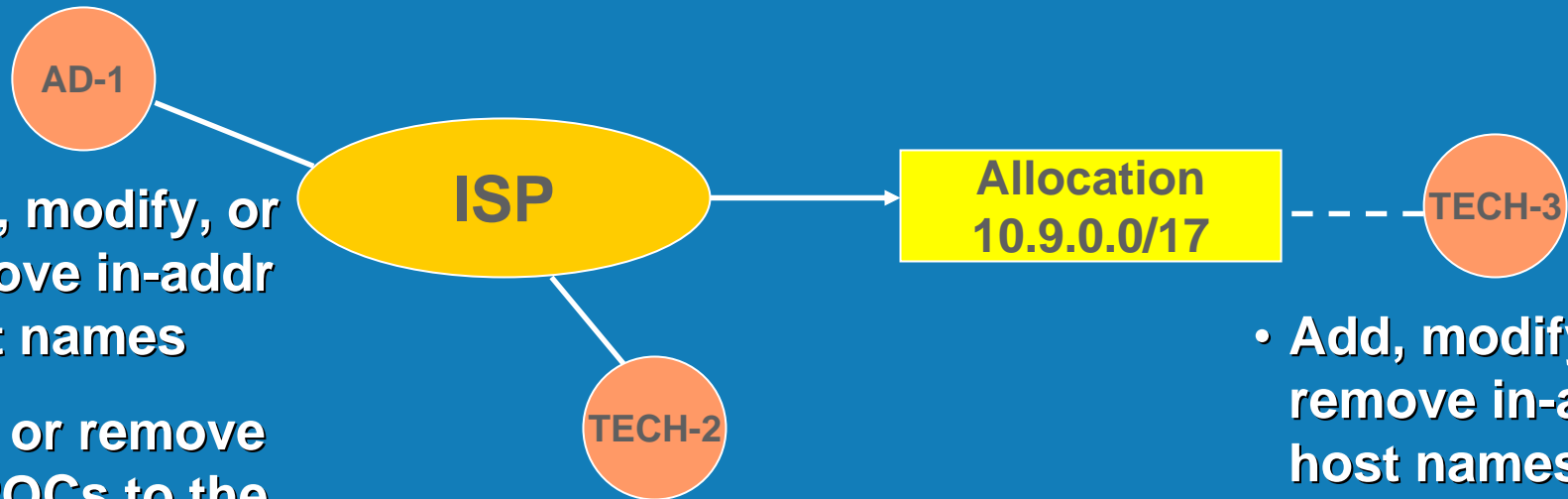
- Add, modify, or remove in-addr host names

- Add or remove *all* POCs to the network

- Return the allocation

- Add or remove SWIPS

- Add, modify, or remove in-addr host names

- Add or remove *all* POCs on the network

- Add or remove SWIPS

- Add, modify, or remove in-addr host names

- Add or remove POCs on the network

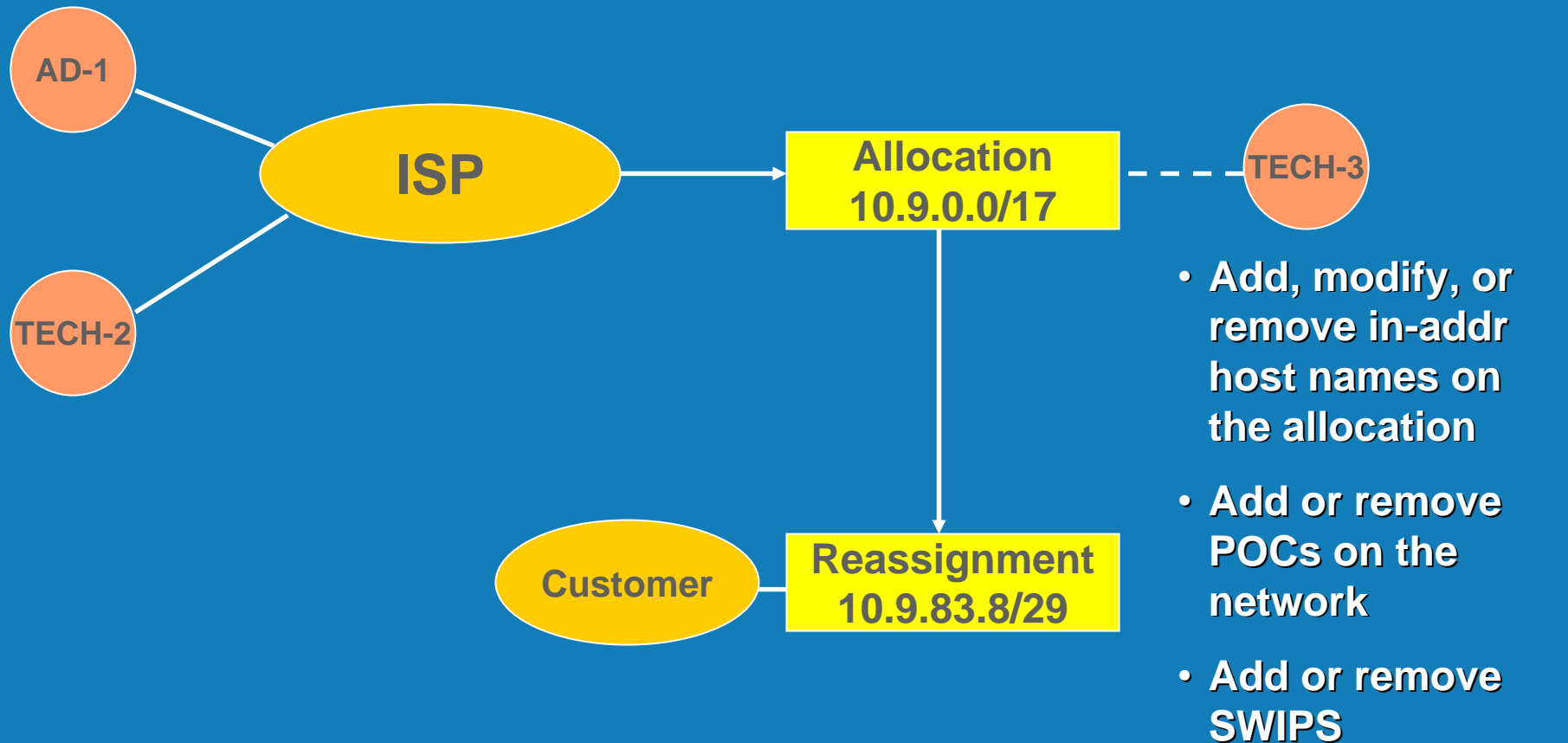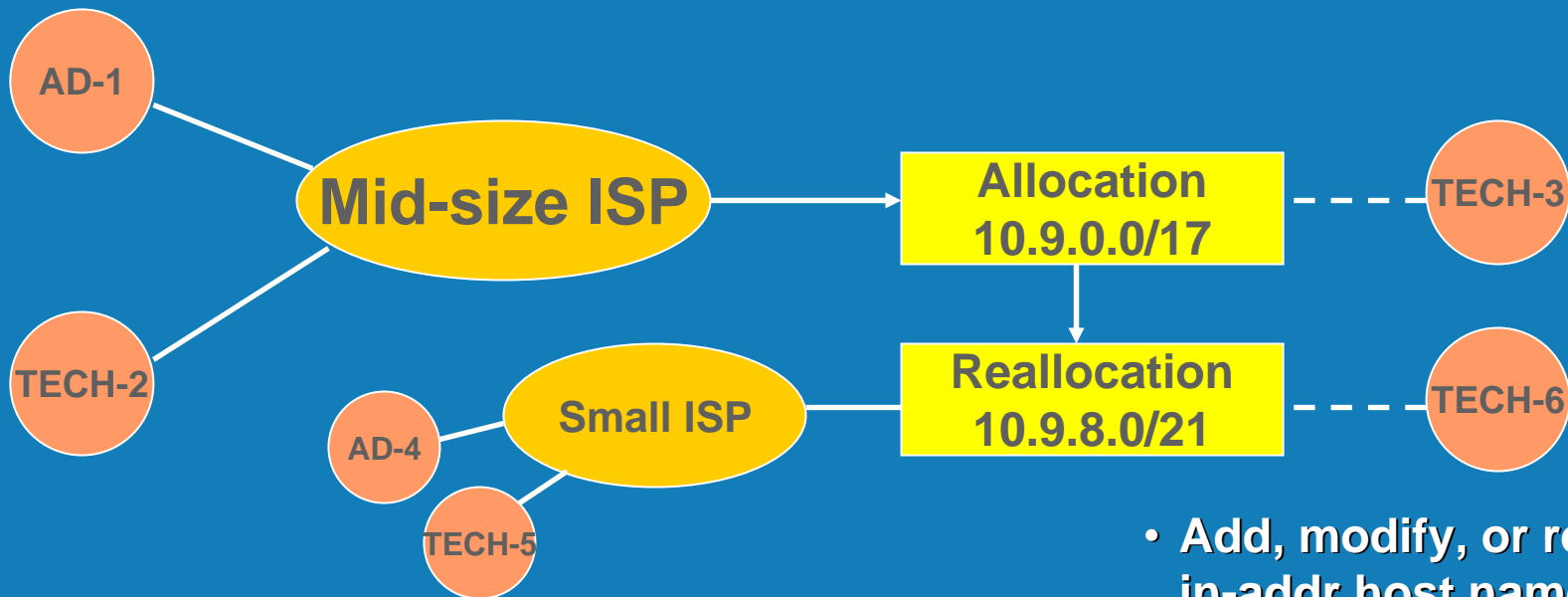- Add or remove SWIPS

Authorization for a Reallocation from an Allocation
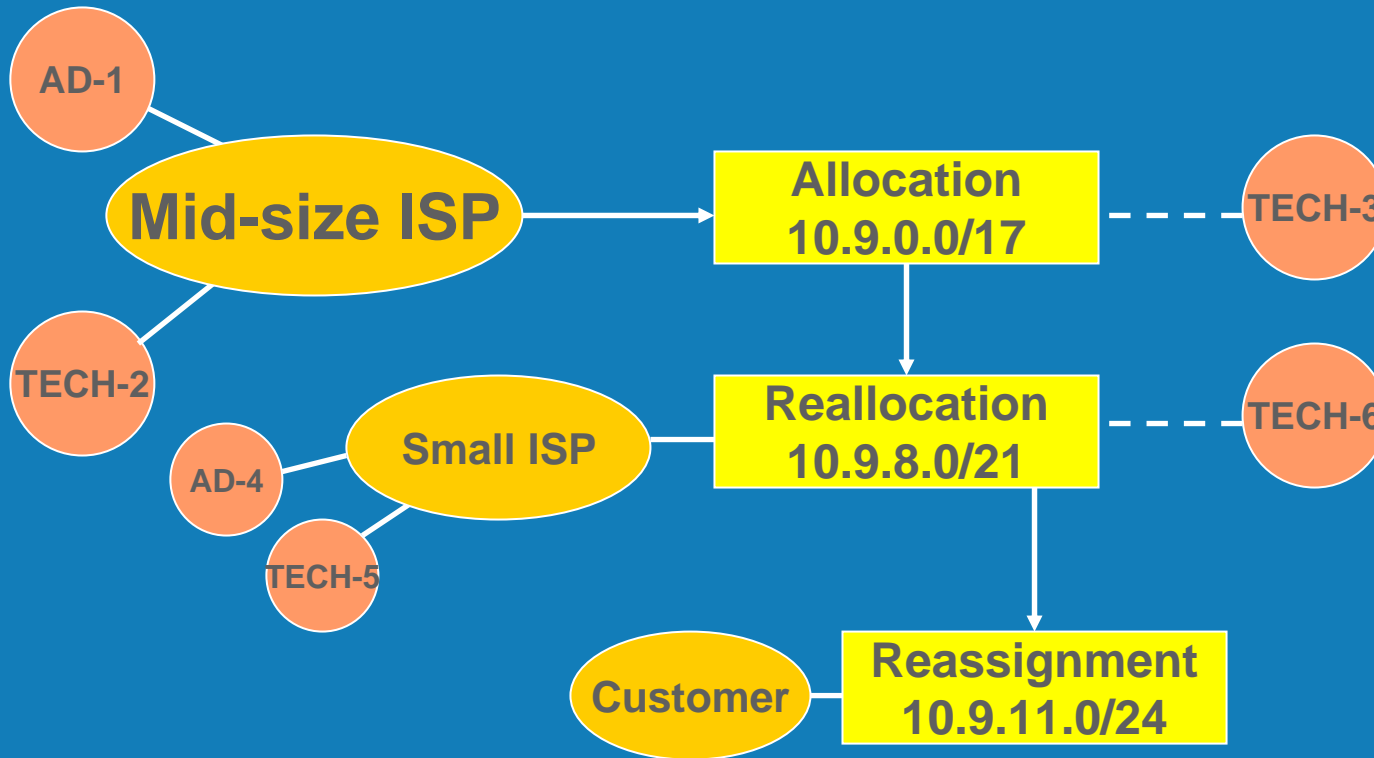
- **Add, modify, or remove in-addr host names on the reallocation**
- **Add or remove POCs on the network**
- **Add or remove SWIPS**

How to Maintain Your Data

Overview

* **Observations**
* **Statistics**
* **Maintaining Your Data**

Observations

* **We are still seeing:**
  - ► Org IDs without any POCs
  - ► Redundant POCs (on Org and Resource)
  - ► Multiple Org IDs for same organization
  - ► Multiple POC handles for same person

Statistics

★ ORG Statistics

► Total number of Org IDs in the database:

276,184

► Orgs without Admin and Tech POCs

65,224 (23.6%)

Data Clean Up Efforts

☀ **1st Org ID Clean Up Attempt Made in December**

► ARIN sent out ~21,409 e-mails to Resource POCs on direct resources with no Org POCs

► 3,122 Org templates processed as a result (roughly 2300 more than an average month)

Maintaining Your Data

* Keep POC information current
* Add appropriate POCs to Org IDs (Admin and Tech)
* Update POCs on both Org IDs and Resource records
* Consolidate multiple Org IDs
* Complete transfers for Orgs that no longer exist
* Use simple reassignments whenever possible
* Return unused resources

Updating POCs

* Individual or Role Account
* Provide valid office phone numbers
* Provide valid e-mail addresses
  * ▶ No free e-mail accounts (hotmail, yahoo, etc.)
* Multiple e-mail addresses allowed
* Only one POC handle per person or role
* Consolidate and remove duplicate POC handles

Updating Org IDs

* **TO REQUEST RESOURCES OR MAKE UPDATES, THE ORG ID *MUST* HAVE ADMIN AND TECH POCS**
  * ►Admin and Tech can be the same POC
* **Ensure that appropriate POCs are associated with an Org ID**
  * ►Administrative POC
    * ► Only one, individual preferred
  * ►Technical POC
    * ► Multiple allowed, individual or role
  * ►NOC and Abuse POC
    * ► Multiple allowed, individual or role

Resource Records

* Multiple POCs allowed
  * ► Tech, NOC, and Abuse
* If same POC is registered on Org ID, do not duplicate for resource
  * ► Automatically defaults to Org POCs
* Why have separate Resource POCs?
  * ► To permit the upstream to manage the downstream's resource
  * ► To separate the management of a resource from the management of the Org ID

Consolidating Org IDs

☀ **Multiple Org IDs exist for same organization**

- ► Result of conversion
- ► Multi-homed downstreams

☀ **1st step**

- ►Determine if unnecessary Org IDs exist
- ►Check WHOIS or ask ARIN to provide list

Consolidating Org IDs

* **Consolidate multiple Org IDs into a single valid Org ID**
  * ► Organization names must be very similar to do this; i.e. ABC to ABC, Inc
  * ► Additional registration data will be used to verify consolidations vs. transfers
* **Why do this?**
  * ► Ease of maintenance
  * ► Could save money
* **How to consolidate?**
  * ► Send e-mail request to hostmaster@arin.net with exact details (no template exists)

Transferring Resources

* **Transfer resources to a valid Org ID**
  * ► When the network and customer base of the original registrant have been purchased, acquired, merged, etc. by or into a different organization
* **Why complete a transfer?**
  * ► To ensure integrity of database
  * ► Protective measure against hijackings
  * ► Transfer fees have been waived through 2004

Sub-delegations (SWIPS)

* **3 types of sub-delegations**
  * ►Reallocates, Detailed Reassignments, and Simple Reassignments
* **Use Simple Reassignments whenever possible**
* **Use Reallocate when issuing to a downstream ISP**
* **Use Detailed Reassignment when issuing to a downstream customer who maintains its own in-addrs and/or own POCs**

Simple Reassignments

* **Simple Reassignments do not require an Org ID**

* **Use Simple Reassignments when:**

  ► Record will be maintained by upstream POCs

  ► Customer will use upstream's in-addrs

* **Roughly 66% of reassignments in ARIN's database are simple reassignments**

Returning Resources

* Internet number resources are finite

* Internet number resources are not considered property

* Per RFC 2050, IP addresses are valid as long as the criteria continue to be met

* If there is no registered Admin POC, any authorized representative of the Org can return unused resources to ARIN

Useful Links

* **Training: Understanding ARIN's Database and Templates**
  http://www.arin.net/library/training/DBTC_CBT/

ARIN's Database and Templates

Unit 1 — Features of the New Database
Unit 2 — Data Administration: Areas of Authority
Unit 3 — Review the Blueprints: The ARIN Templates
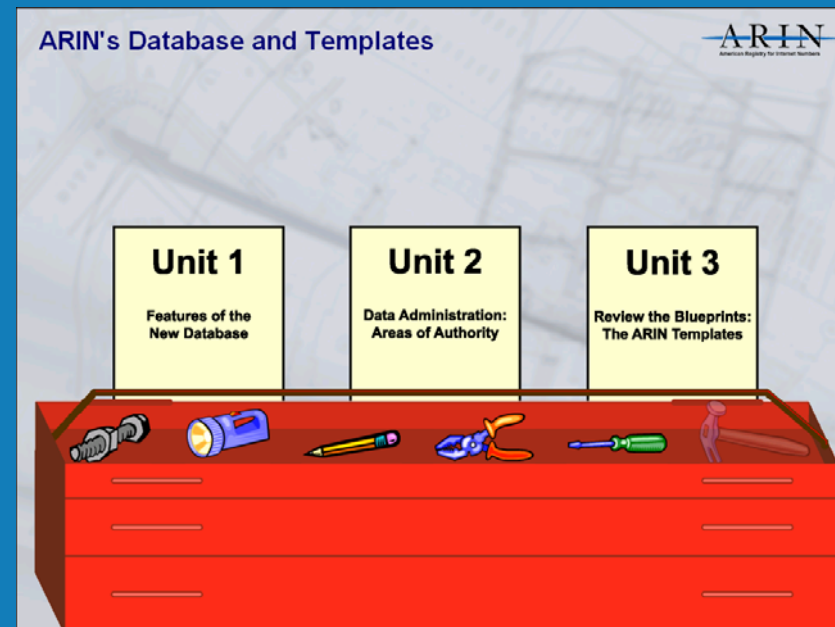
* **Templates**
  http://www.arin.net/library/index.html#templates

WHOIS Examples

Multiple Orgs in Need of Consolidation

WHOIS Search: whois> ISP C*

ISP Cable Co (ICC-1)

ISP Clearinghouse Inc (ICI-34)

ISP Company (IC-1)

ISP Company, Inc (ICI-22)

ISP Custom Service Providers (ICSP)

ISP Customer Record (NET-10-2-126-0-1) 10.2.126.0 – 10.2.126.31

ISP Customer Record (NET-10-2-126-0-1) 10.2.126.32 – 10.2.126.63

ISP Customer Record (NET-10-2-126-0-1) 10.2.126.64 – 10.2.126.91

Multiple Orgs in Need of Consolidation

WHOIS Search: whois> o ISP C*

ISP Cable Co (ICC-1)
ISP Clearinghouse Inc (ICI-34)
ISP Company (IC-1)
ISP Company, Inc (ICI-22)
ISP Custom Service Providers (ICSP)

WHOIS Search: whois> o ISP Co*

ISP Company (IC-1)
ISP Company, Inc (ICI-22)

Multiple Orgs in Need of Consolidation

WHOIS Search: whois> o + ISP Co*

COMPANY 1:

OrgName:	**ISP Company**
OrgID:	IC-1
Address:	100 Main Street
	Suite 200
City:	Chantilly
StateProv:	VA
PostalCode:	20151
Country:	US
Comment:	
RegDate:	xxxx-xx-xx
Updated:	xxxx-xx-xx

<Org POCs, if any, listed here>

COMPANY 2:

OrgName:	**ISP Company Inc.**
OrgID:	ICI-22
Address:	100 Main Street
	Suite 200
City:	Chantilly
StateProv:	VA
PostalCode:	20151
Country:	US
Comment:	
RegDate:	xxxx-xx-xx
Updated:	xxxx-xx-xx

<Org POCs, if any, listed here>

Multiple POCs in need of consolidation

POC 1:

whois> **JS1-ARIN**

Name:	SMITH, John
Handle:	JS1-ARIN
Company:	ISP Company
Address:	100 Main Street Suite 200
City:	Chantilly
StateProv:	VA
PostalCode:	20151
Country:	US
Comment:	
RegDate:	xxxx-xx-xx
Updated:	xxxx-xx-xx
Phone:	+1-703-999-8888 (Office)
Email:	JSMITH@ example.com

POC 2:

whois> **JS2-ARIN**

Name:	SMITH, John
Handle:	JS2-ARIN
Company:	ISP Company
Address:	100 Main Street Suite 200
City:	Chantilly
StateProv:	VA
PostalCode:	20151
Country:	US
Comment:	
RegDate:	xxxx-xx-xx
Updated:	xxxx-xx-xx
Phone:	+1-703-999-8888 (Office)
Email:	JSMITH@ example.net

Redundant POCs

ARIN — American Registry for Internet Numbers

```
whois> a 64512
OrgName:    ISP Company, Inc.
OrgID:      ICI-22
Address:    100 Main Street
City:       Chantilly
StateProv:  VA
PostalCode: 20151
Country:    US
ASNumber:   64512
ASName:     ISPCOMPANY
ASHandle:   AS64512
Comment:
RegDate:    xxxx-xx-xx
Updated:    xxxx-xx-xx

AbuseHandle: ABUSE-ARIN
AbuseName:   Abuse Department
AbusePhone:  +1-703-555-1221
AbuseEmail:  abuse@example.com

NOCHandle:   NOC-ARIN
NOCName:     NOC
NOCPhone:    +1-703-555-1222
NOCEmail:    noc@example.com

TechHandle:  JS1-ARIN
TechName:    Smith, John
TechPhone:   +1-703-999-8888
TechEmail:   JSMITH@example.com

OrgAbuseHandle: ABUSE-ARIN
OrgAbuseName:   Abuse Department
OrgAbusePhone:  +1-703-555-1221
OrgAbuseEmail:  abuse@example.com

OrgNOCHandle:   NOC-ARIN
OrgNOCName:     NOC
OrgNOCPhone:    +1-703-555-1222
OrgNOCEmail:    noc@example.com

OrgTechHandle:  JS1-ARIN
OrgTechName:    Smith, John
OrgTechPhone:   +1-703-999-8888
OrgTechEmail:   JSMITH@example.com
```

Detailed Reassignment vs. Simple Reassignment

whois> NET-10-100-100-0-1

OrgName: Downstream Company
OrgID: DOWNSTCO-1
Address: 100 Broadway Ave
City: Chantilly
StateProv: VA
PostalCode: 20151
Country: US

NetRange: 10.100.100.0 – 10.100.100.255
CIDR: 10.100.100.0/24
NetName: CUST001
NetHandle: NET-10-100-100-0-1
Parent: NET-10-0-0-0-1
NetType: Reassigned
Comment:
RegDate: xxxx-xx-xx
Updated: xxxx-xx-xx

TechHandle: IPA2-ORG-ARIN
TechName: Tech at Upstream
TechPhone: +1-800-215-1111
TechEmail: IPAdmin@upstream.com

OrgTechHandle: TECHCO-ARIN
OrgTechName: Tech at Downstream
OrgTechPhone: +1-571-331-1111
OrgTechEmail: tech@downstream.net

whois> NET-10-100-100-0-1

CustName: Downstream Company
Address: 100 Broadway Ave
City: Chantilly
StateProv: VA
PostalCode: 20151
Country: US
RegDate: xxxx-xx-xx
Updated: xxxx-xx-xx

NetRange: 10.100.100.0 – 10.100.100.255
CIDR: 10.100.100.0/24
NetName: CUST001
NetHandle: NET-10-100-100-0-1
Parent: NET-10-0-0-0-1
NetType: Reassigned
Comment:
RegDate: xxxx-xx-xx
Updated: xxxx-xx-xx

OrgTechHandle: IPA2-ORG-ARIN
OrgTechName: Tech at Upstream
OrgTechPhone: +1-800-215-1111
OrgTechEmail: IPAdmin@upstream.com

WHOIS Query Flags

! > OrgID - Shows the Org record and resources used by the Organization

> Nethandle - Shows network record and the sub-delegations under the netblock

@ domain name – Shows POCs registered with that domain

WHOIS Query Flags

o - List only the Org records that match

p - List only POC records that match

a – List only AS records that match

n – List only network records that match

WHOIS TRAINING:
http://www.arin.net/tools/whois_help.html
http://www.arin.net/library/training/WHOIS_CBT/index.html

Questions?