Policy Proposal 6

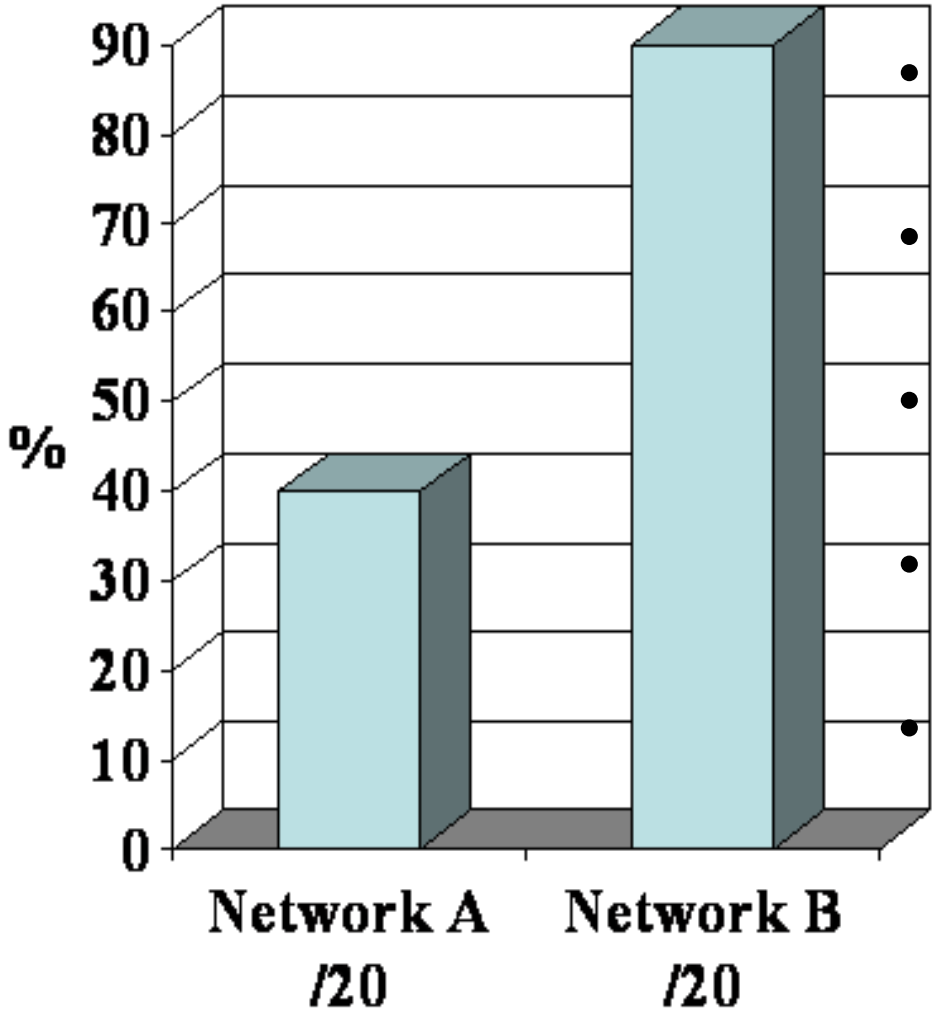
Single organizations with multiple aggregation points

Andrew Dul

Why a new policy?

- Some organizations have requirements for multiple discrete networks that need individual address allocations.
- Route filtering on RIR allocation boundaries prevent subnetting blocks smaller than /20.
- Current policy only evaluates utilization for whole organization.

Allocations under current policy



- Network A has a total utilization of 40%
- Network B has a total utilization of 90%
- Network B needs additional address space
- Current utilization for whole organization 65%
- Current utilization requirement is 80%, ARIN will not allocate a new address block.

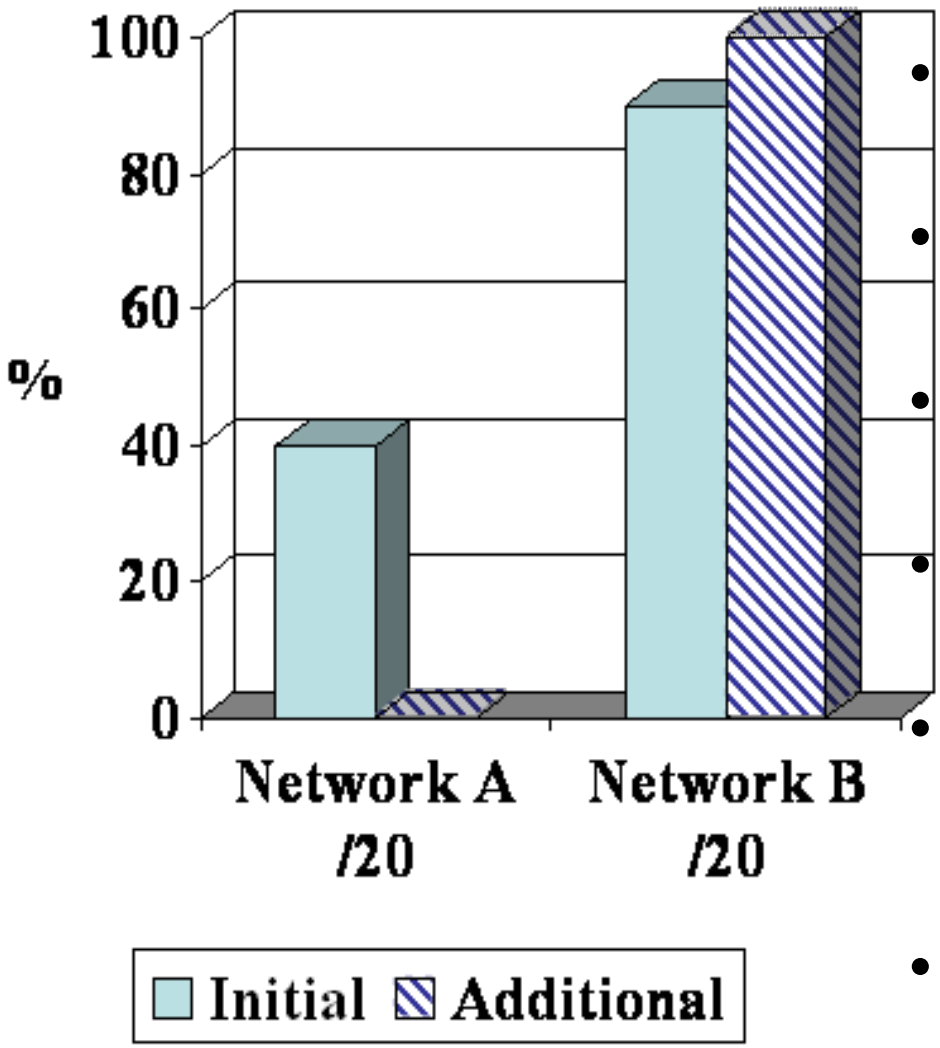
Organization Requirements

- The organization must have compelling criteria for creating diverse networks.
- Applies only to organizations after they have requested the policy apply.
- Organization would not use ‘multiple maintainers’ after implementing these new allocation requirements.

Allocation Requirements

- Each discrete network must show > 80% utilization before allocating a new block.
- Organizations should attempt to provide CIDR growth paths for a discrete network and keep records of these allocations.
- All ARIN allocations and the last block granted must show > 50% utilization before ARIN will grant a new block.

Allocations under new policy



- Network A has a total utilization of 40%
- Network B has a total utilization of 90%
- Network B needs additional address space
- Utilization for whole organization 65%
- New requirement is 50% for org. and 80% for Network B
- New /20 allocated to Network B

Feedback from mailing list

- ARIN should not be involved in deciding if "[an] organization *must* have a compelling reason for creating discrete networks."
  - Change *must* to *should*?
  - Remove this requirement?

Feedback from mailing list - 2

- "Organizations with 'multiple maintainers' *should* request that the policy apply to their accounts"
  - This was intended to be a suggestion not a requirement.
  - Is the language too strong?
  - Should we remove this section?

Alternatives

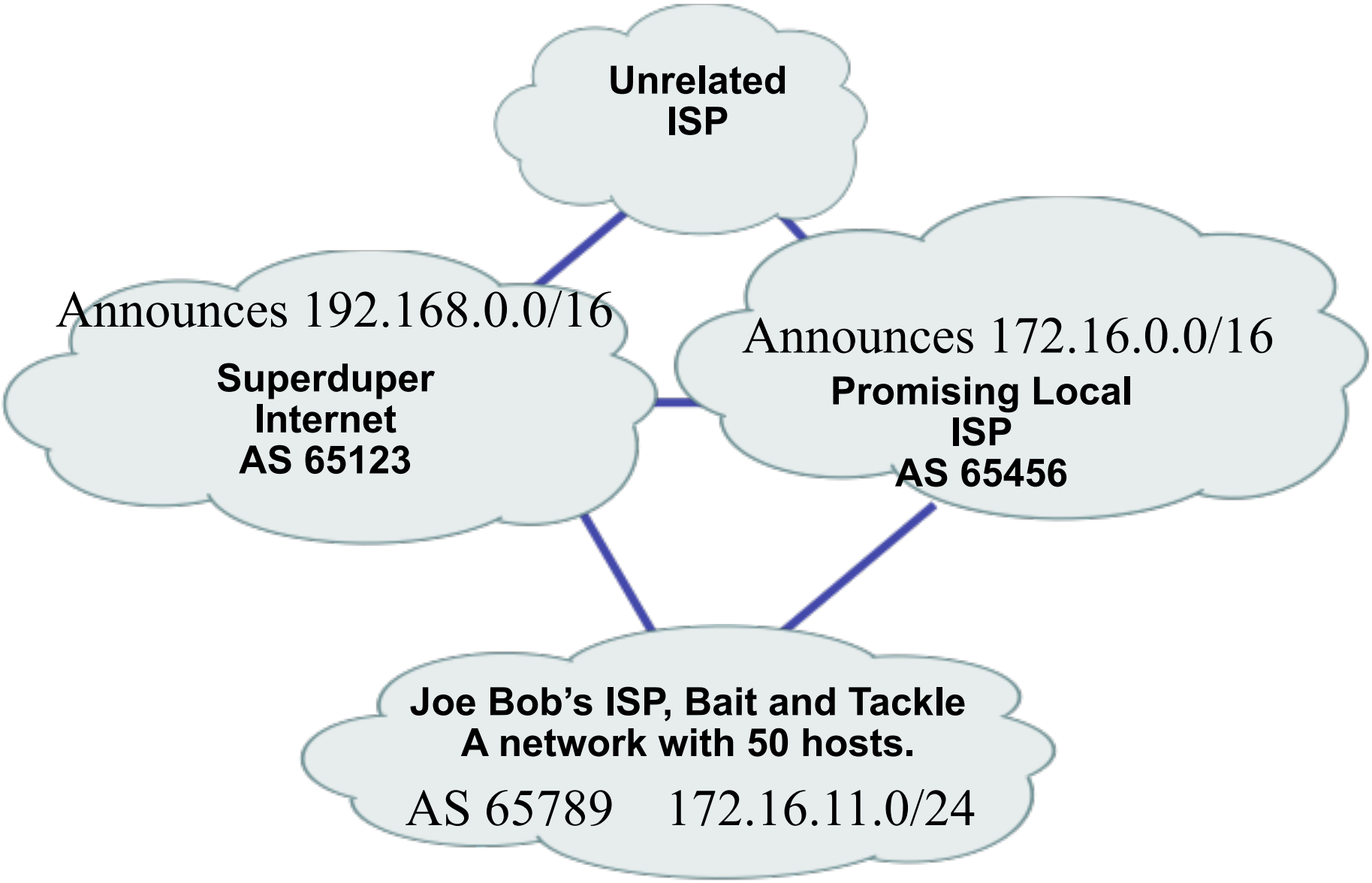
- Use Multiple Maintainers work around
  - Current system “works”.
  - Administratively costly to ARIN and ARIN members.
  - Financial implications for ARIN and ARIN members.
  - Some members believe ‘multiple maintainers’ is a better policy than the one presented.

Comments

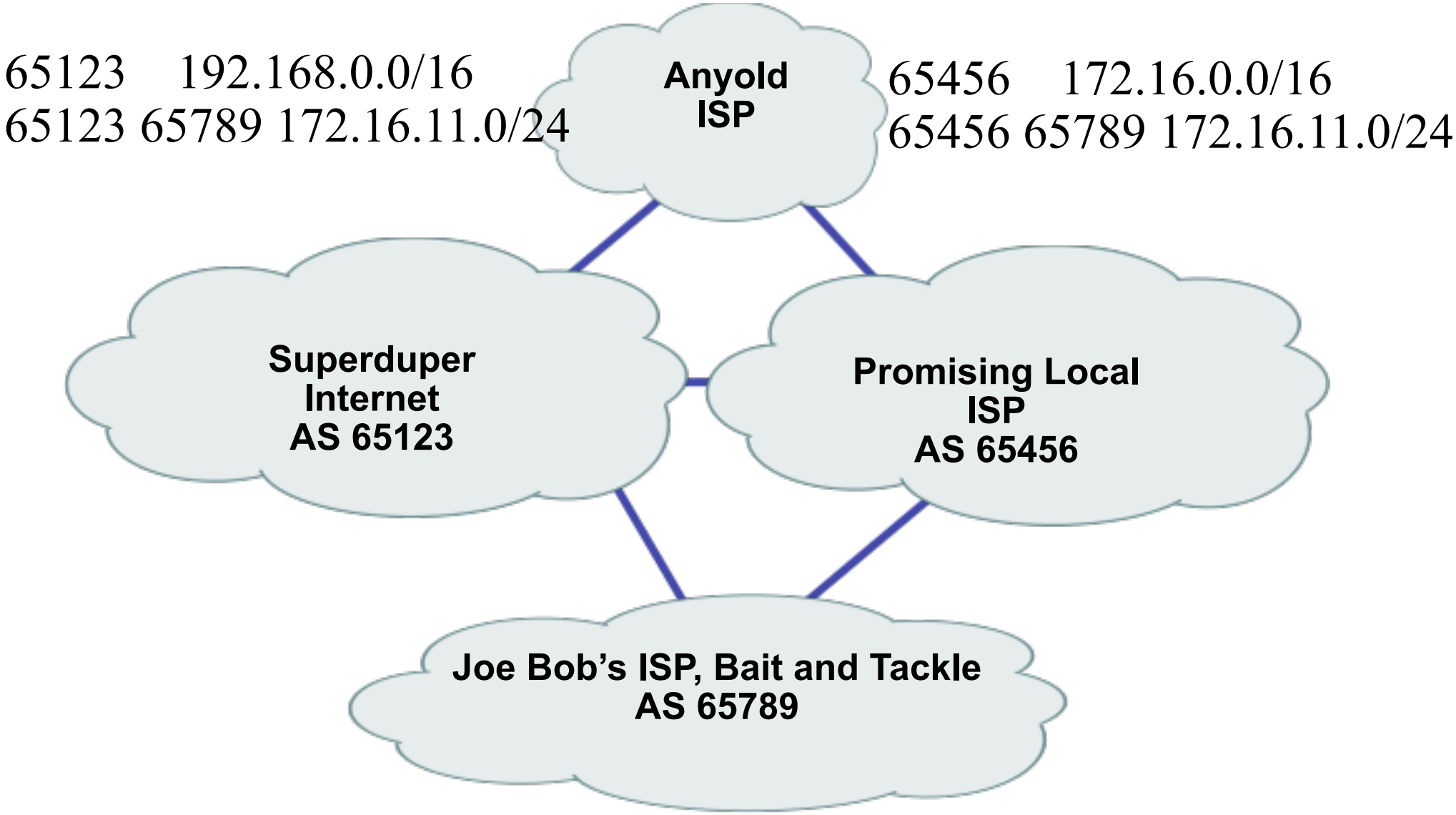
Andrew Dul
andrew@internap.com

Policy Proposal 2001-2

- A downstream customer's multihoming requirement will serve as justification for a /24 reassignment from their upstream ISP regardless of host requirements.


Unrelated
ISP
Announces 192.168.0.0/16
Superduper
Internet
AS 65123
Announces 172.16.0.0/16
Promising Local
ISP
AS 65456
Joe Bob's ISP, Bait and Tackle
A network with 50 hosts.
AS 65789 172.16.11.0/24

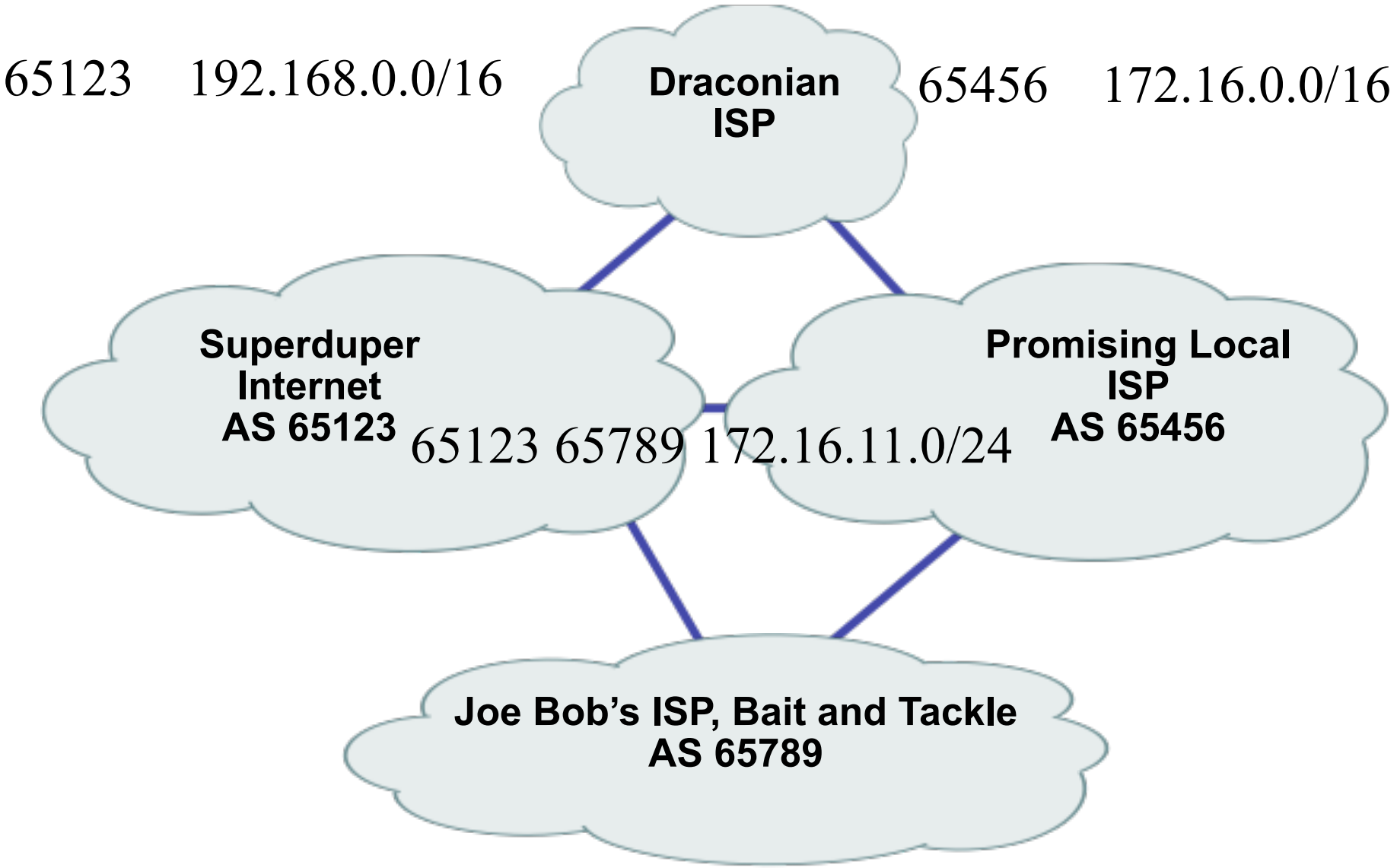
Common Filtering Scenario



Common Filtering Scenario

- Based on unscientific sampling at NANOG Peering BOF, over 95% of ISPs accept /24 or larger announcements from peers
- Anyold ISP will have equivalent and redundant connectivity to Joe Bob

Strong Filtering Scenario



Strong Filtering Scenario

- Draconian still has connectivity to Joe Bob via Promising Local
- If Joe Bob's connection to Promising Local is unavailable, Promising can still send traffic to Superduper
- Therefore, Draconian can send traffic: Promising Local, Superduper, Joe Bob

Final Notes

- Accepting /24 or longer is most common practice
- Most ISPs currently consider multihoming to be justification for a /24 reassignment
- Most multihomers have hostcount to justify /24 or greater
- No additional routes are added
- Policy is moot if microallocation policy is approved

Policy Proposal 2001-2

- A downstream customer's multihoming requirement will serve as justification for a /24 reassignment from their upstream ISP regardless of host requirements.

2001-5 Microallocations

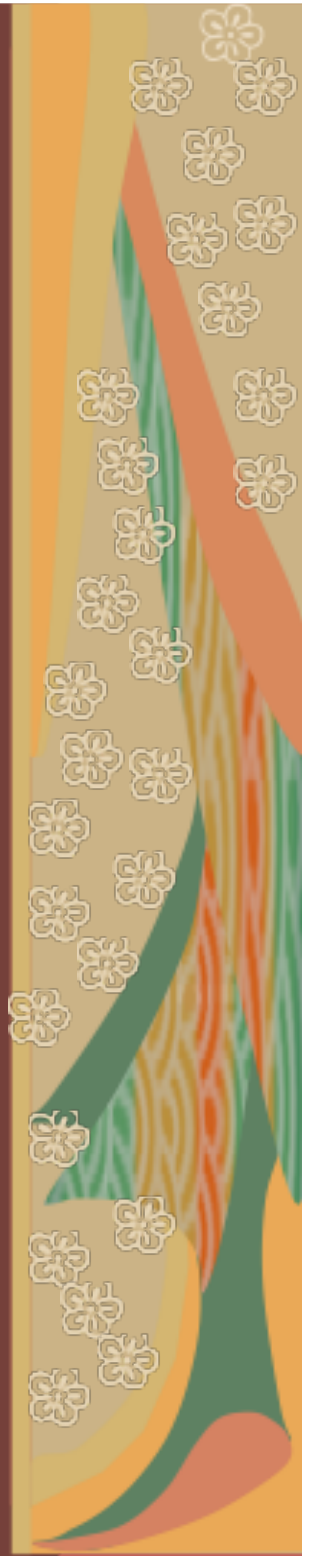
Wed Sep 26 2001

Proposal:

Establish a micro-assignment policy that would allow entities, using multihoming as justification, to obtain an assignment from ARIN longer than the current minimum assignment size of a /20.

This policy proposal discussion will take place on the public policy mailing list (ppml@arin.net).

(not much discussion has occurred!!!)



What does this mean?

- Provider Independent /24's (or /32's !!!)
- One big pile or several smaller piles?
  - "reuse" 192.0.0.0/8 ?
  - Each RIR gets its own?
- Will it be possible to aggregate?

Impact to ISPs & Internet

- Aggravate route-table growth
  - Minimize the ability to aggregate
- Delay routing convergence
  - Sorting 100,000 entries w/ 10% “churn”
  - Sorting 500,000 entries w/ 15% “churn”
- Who gets the last routing table entry?

Impact to ARIN

- Staffing overhead to deal with “excessive” requests. E.G. Reduced incentive to use upstream for delegation.
- Can ARIN afford to incent ISPs to carry its prefix?

RIR Custodial duties

- Manage the resources to best effect
  - Does this mean conservation?
  - Respond to member considerations
- Agnostic to temporal technology constraints
  - P4200, AGS,7x00,GSR,Mxx,…
  - Statics,EGP,BGP,….
- ~~Is there choice for the member?~~
- Has there ever been a routing assurance?

What RIRs don't do

- Develop hardware – the marketplace has done a fine job of building to meet demand.
- Define routing algorithms – that occurs inside the IETF

Should we be responsible to set policies based on these organizations inability to perform?

What have others done?

APNIC has insisted that renumbering occur when a micro-allocation is made.

Ripe delegates /20s to LIRs and requires LIRs report any assignment g.t. /28. -- Can be marked as PI space – No assurance of Routing

Eyes Wide Shut

If we recommend adoption of this policy, we push to each ISP the burden of managing the routing table locally. In the absence of better routing algorithms and enhanced hardware, the routability of microallocations is dependent on local ISP policy. Global reachability is degraded until technology catches up.

Leading Questions

Walled-Gardens or End2End?

How long will it take for “them” to catch up?

Can this be used to drive better filtering policies?

How will “we” be able to authenticate announcements/assignments?

…etc?

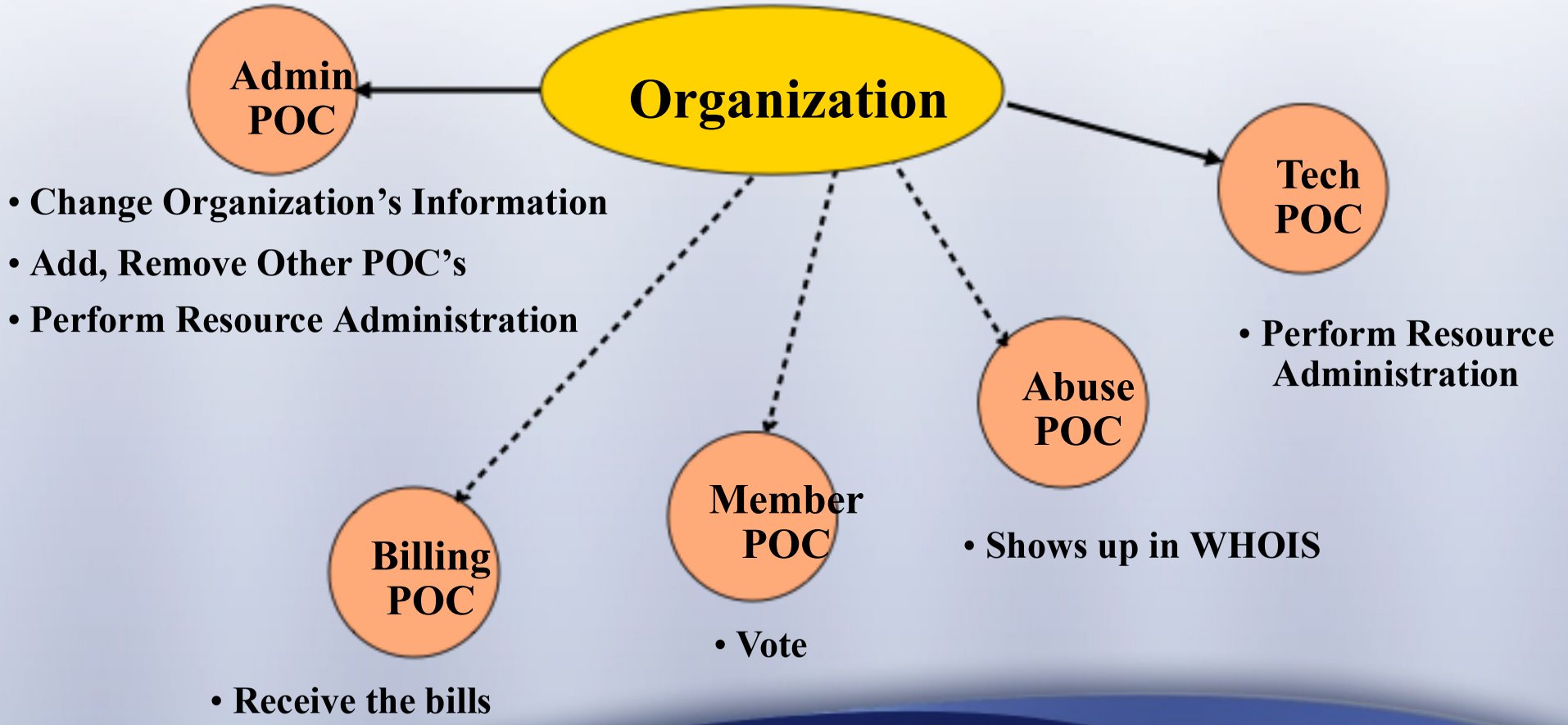
Authorization and Authentication in the New ARIN Database

Cathy Murphy
Principal Software Engineer
<cathym@arin.net>

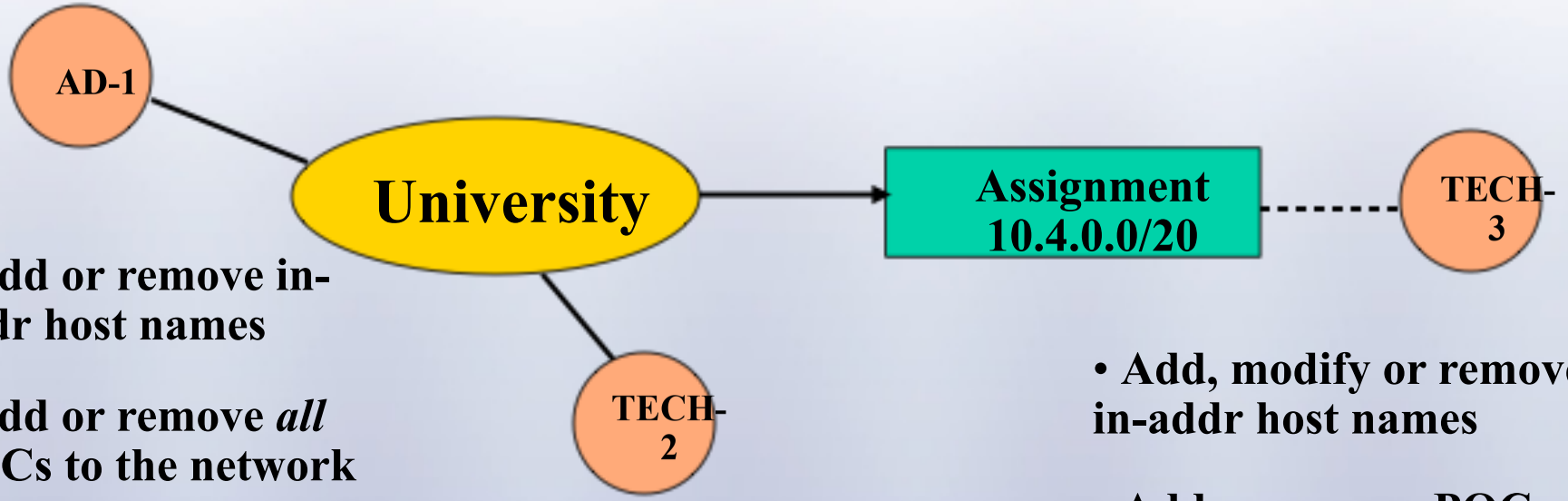
Overview

- The Organization Record
- Examples
  - Assignments
  - Allocations
  - Reassignment from an Allocation
  - Reassignment from a Re-allocation
- Authentication hook

The Organization Record



How Authorization Will Work for Assignments

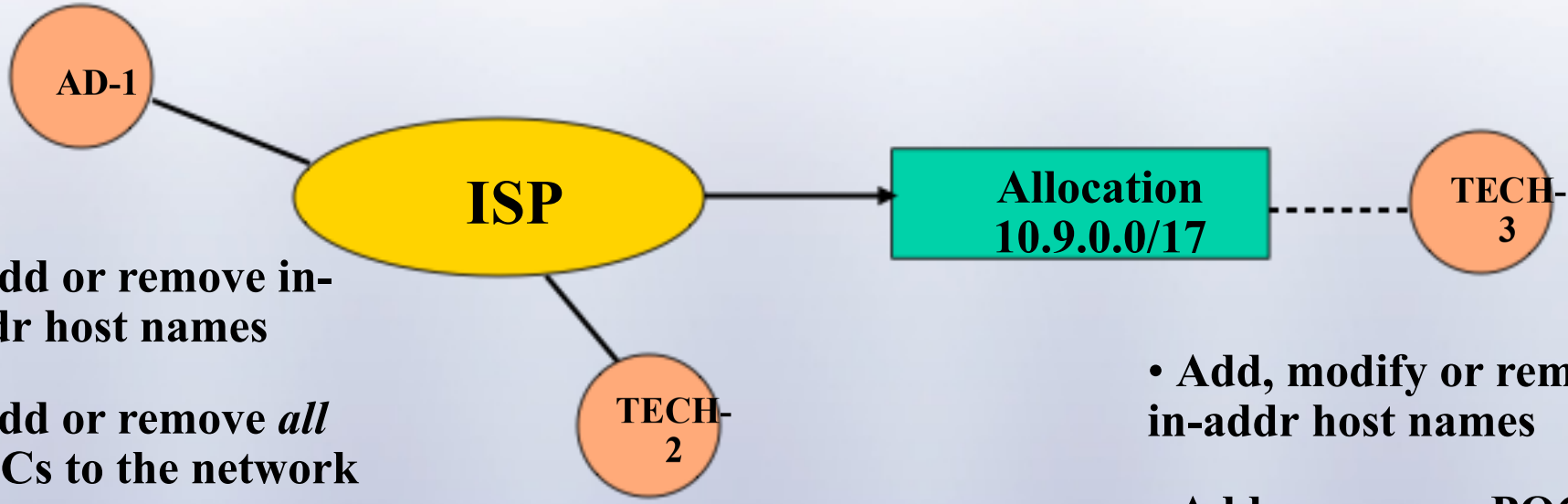


- Add or remove in-addr host names
- Add or remove *all* POCs to the network
- Return the assignment

- Add, modify or remove in-addr host names
- Add or remove *all* POCs on the network

- Add, modify or remove in-addr host names
- Add or remove POCs on the network

How Authorization Will Work for Allocations



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- Add, modify or remove in-addr host names
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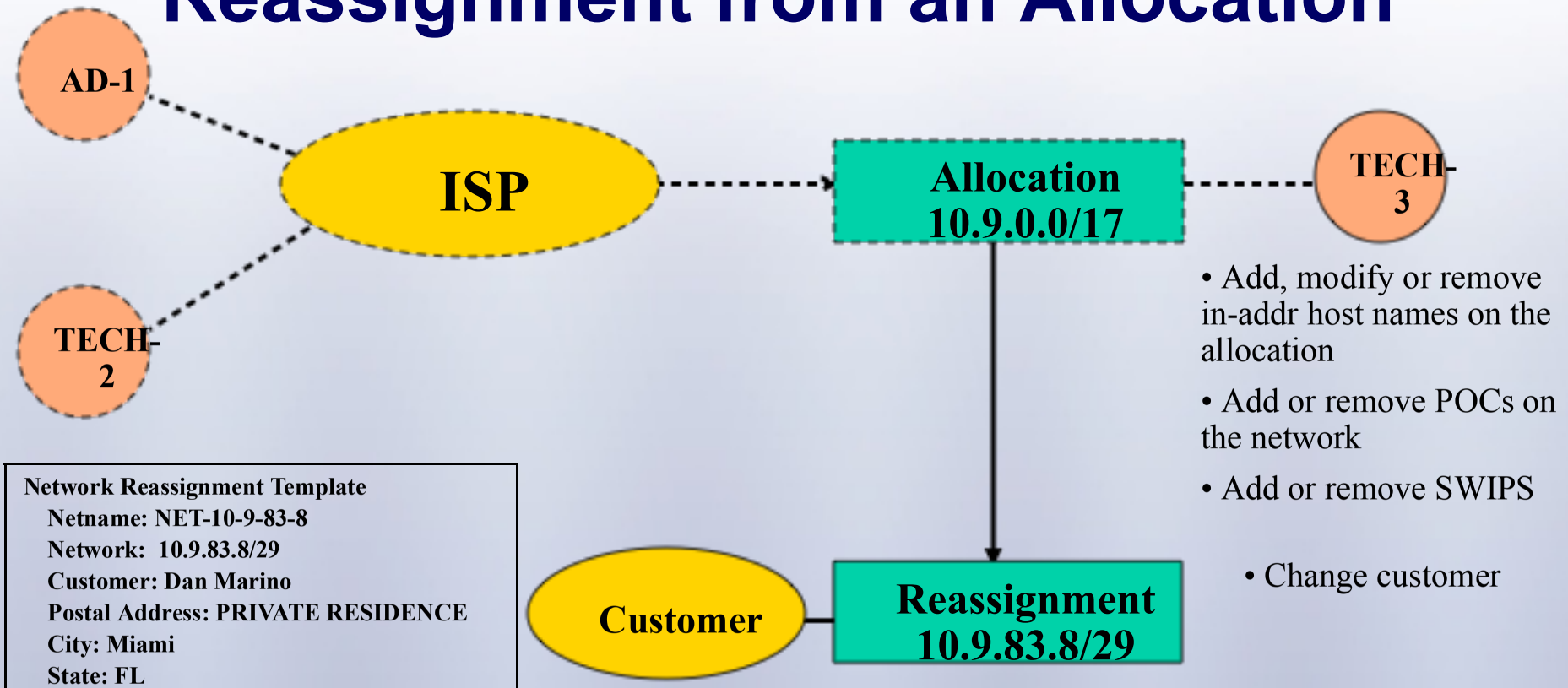
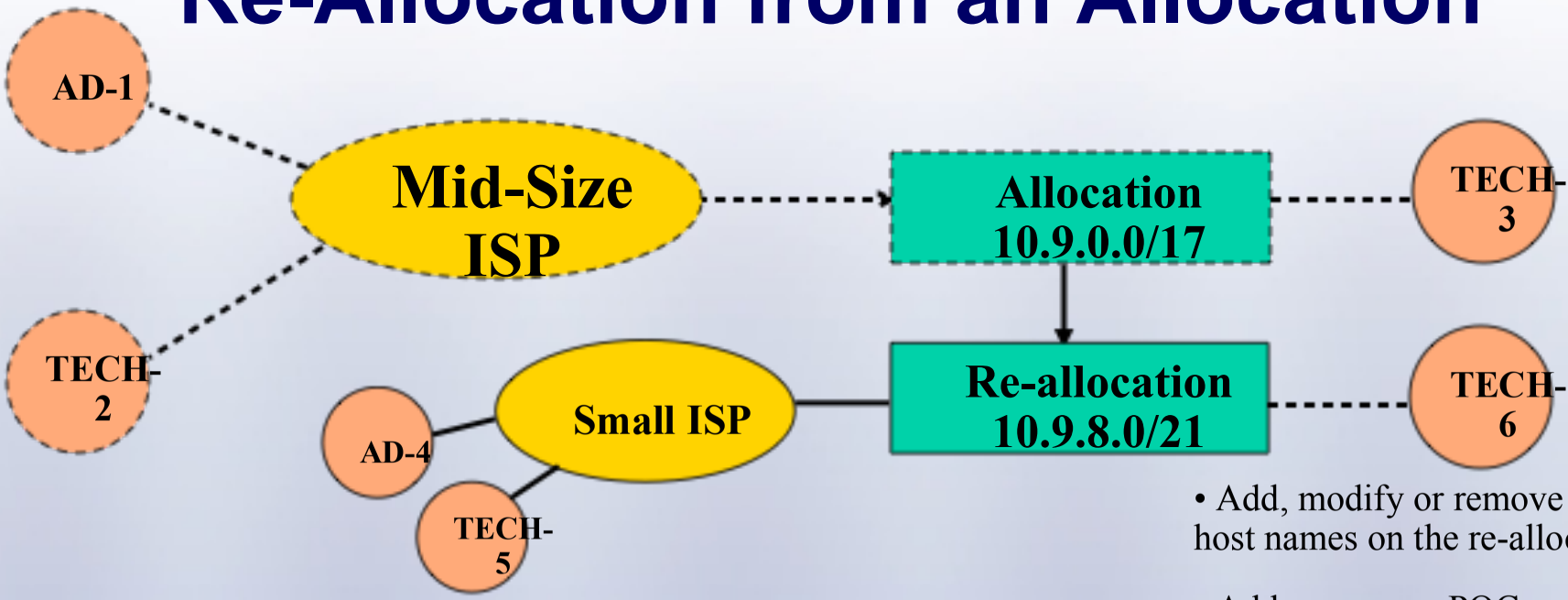
- Add, modify or remove in-addr host names
- Add or remove POCs on the network
- Add or remove SWIPS

How Authorization Will Work for a Reassignment from an Allocation



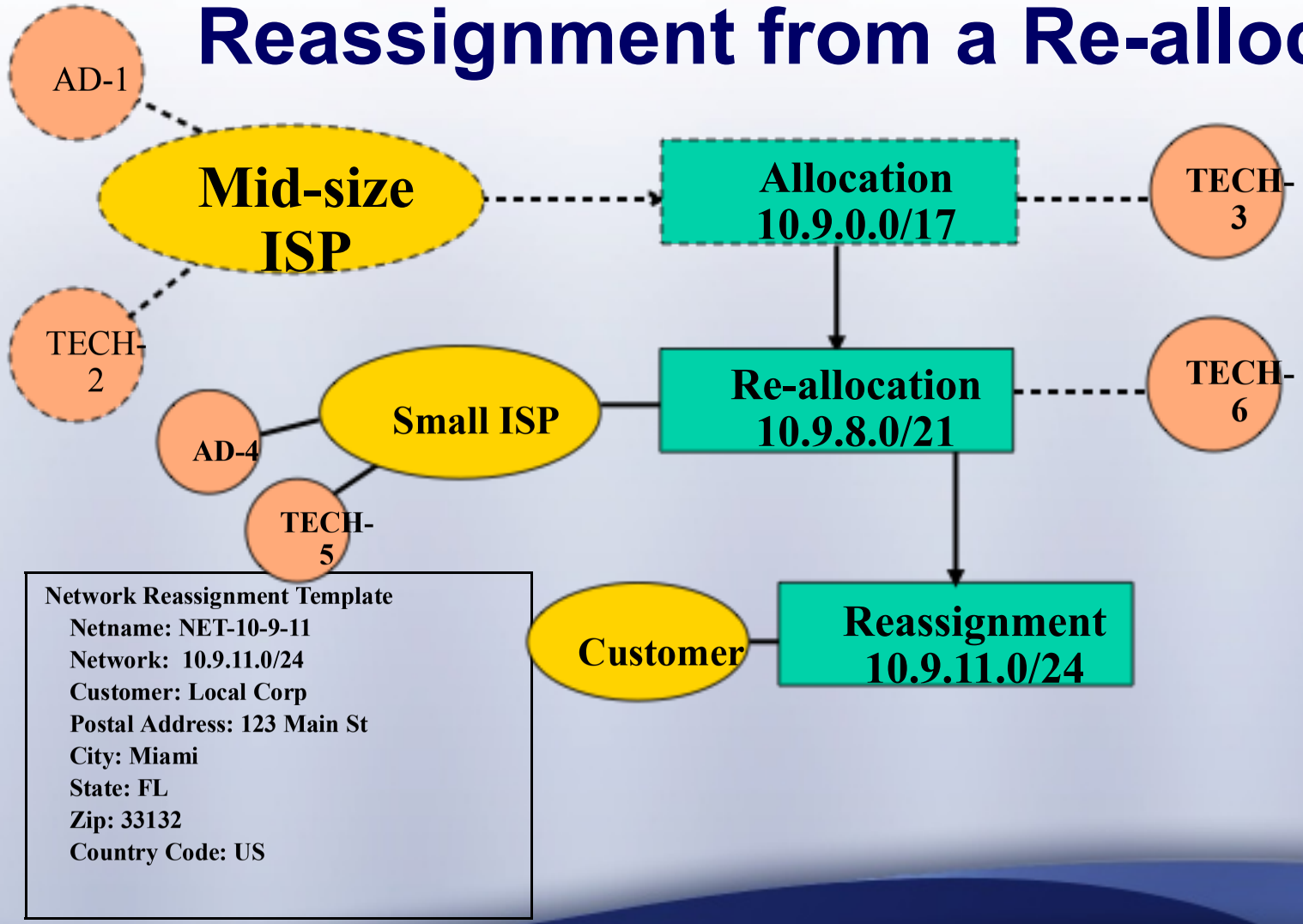
How Authorization Will Work for a Re-Allocation from an Allocation



- Add, modify or remove in-addr host names on the re-allocation
- Add or remove POCs on the network
- Add or remove SWIPS

Network Re-allocation Template
Netname: NET-DS-10-9-8
Network: 10.9.8.0/21
Org Handle: BISCAYNE-MNT
Tech POC: TECH-6

How Authorization Will Work for a Reassignment from a Re-allocation



- Add, modify or remove in-addr host names on the re-allocation
- Add or remove POCs on the network
- Add or remove SWIPS
- Change customer
- Add, modify or remove in-addr host names on the reassignment

Authentication

- Authentication Mechanism Options
  - Mail-from
  - ssh/pgp keys
  - ssl (web)
  - certificates

- Prioritize authentication mechanisms

Richard Jimmerson

ARIN

- Policy Proposal 7: Copies of ARIN's WHOIS database
- Proposal:
  It is proposed ARIN provide a bulk copy of WHOIS output, minus point of contact information, on the ARIN FTP site for download by any organization that wishes to obtain the data providing they agree to ARIN's acceptable use policy that would accompany the data.