IPv6 and the Enterprise (Workshop)

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About Us

- Trainers and Consultants
- 10+ years of IPv6 experience each
- Extensive experience with IPv6 deployments

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Scope of this Talk

- Enterprise environments
- *Client* networks

- Large number of nodes
- Limited skills
- BYOD
- IoT

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Part I

Common Misconceptions

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Lessons Learned So Far (Or Not)

- IPv6 unavoidable
- Don't procrastinate
- IPv6 is *not* "IPv4 with longer addresses"...
- IPv6 is a management problem
- "IPv6 Deployment" vs. IPv4 Retirement

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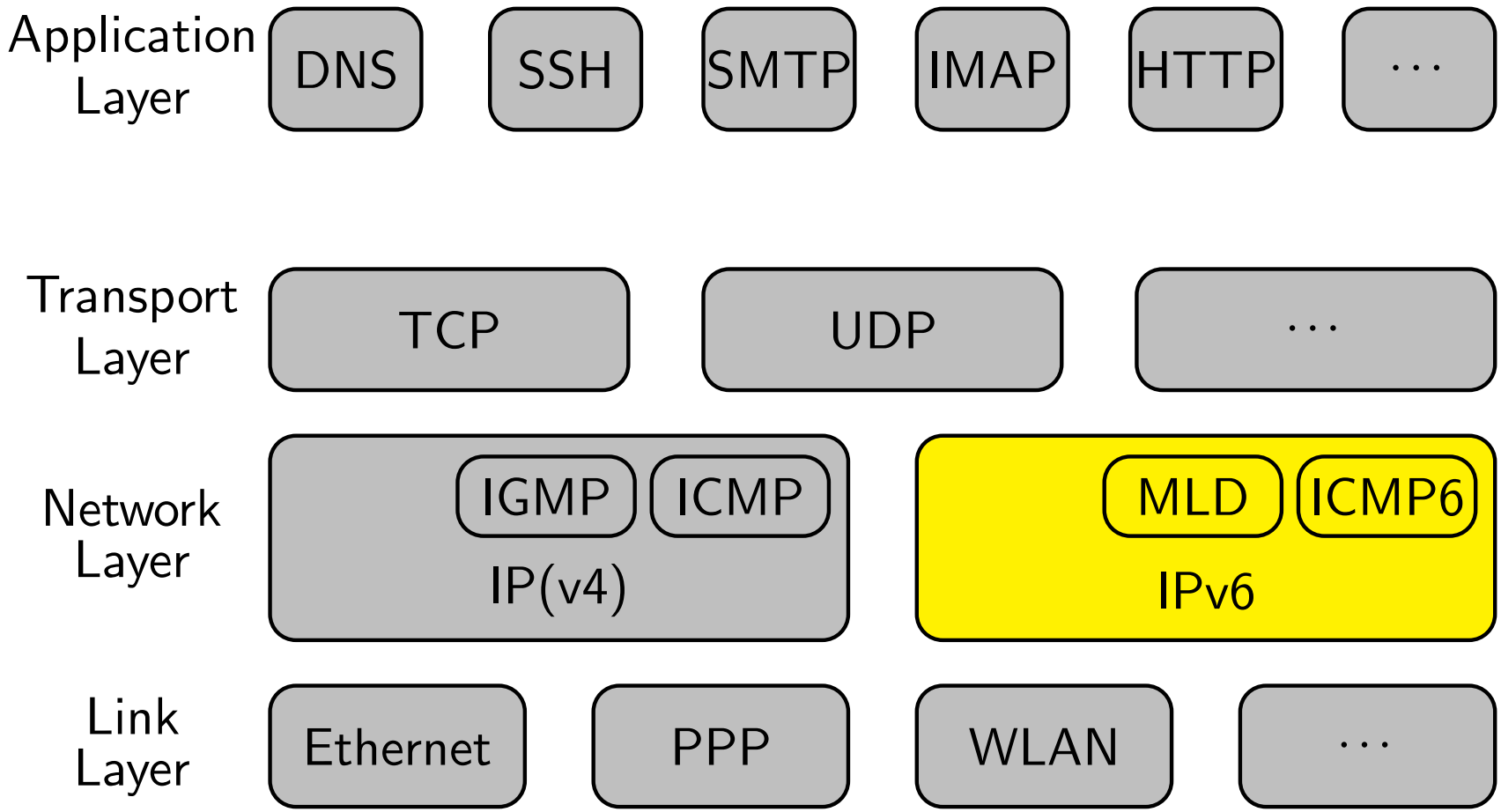
The "Official" TCP/IP Stack



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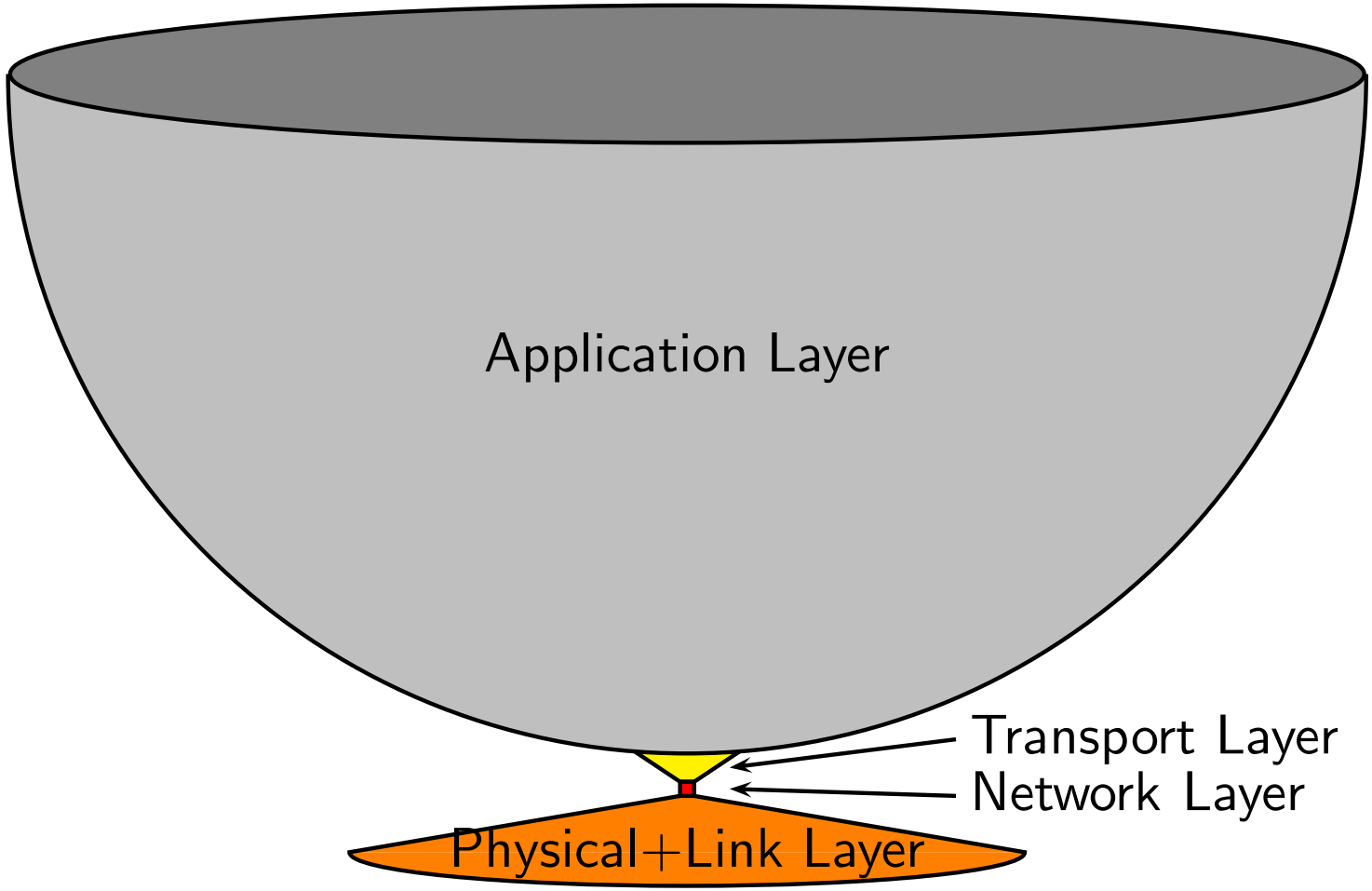
The "Real" TCP/IP Stack



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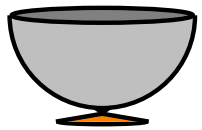
The “Really Real” TCP/IP Stack



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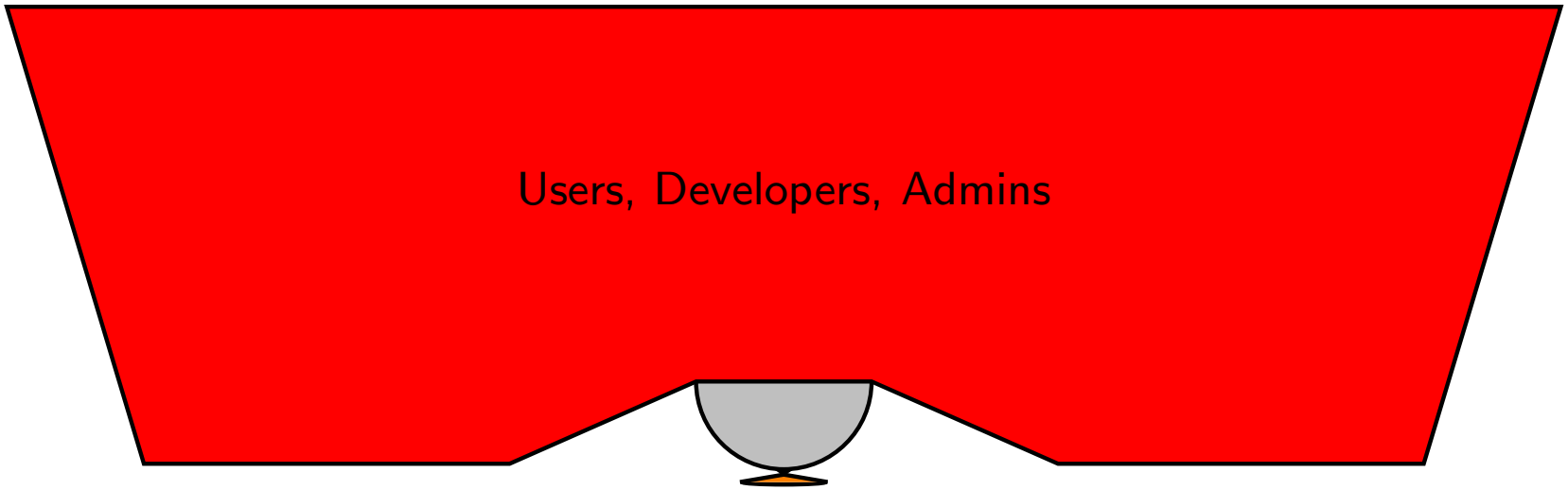

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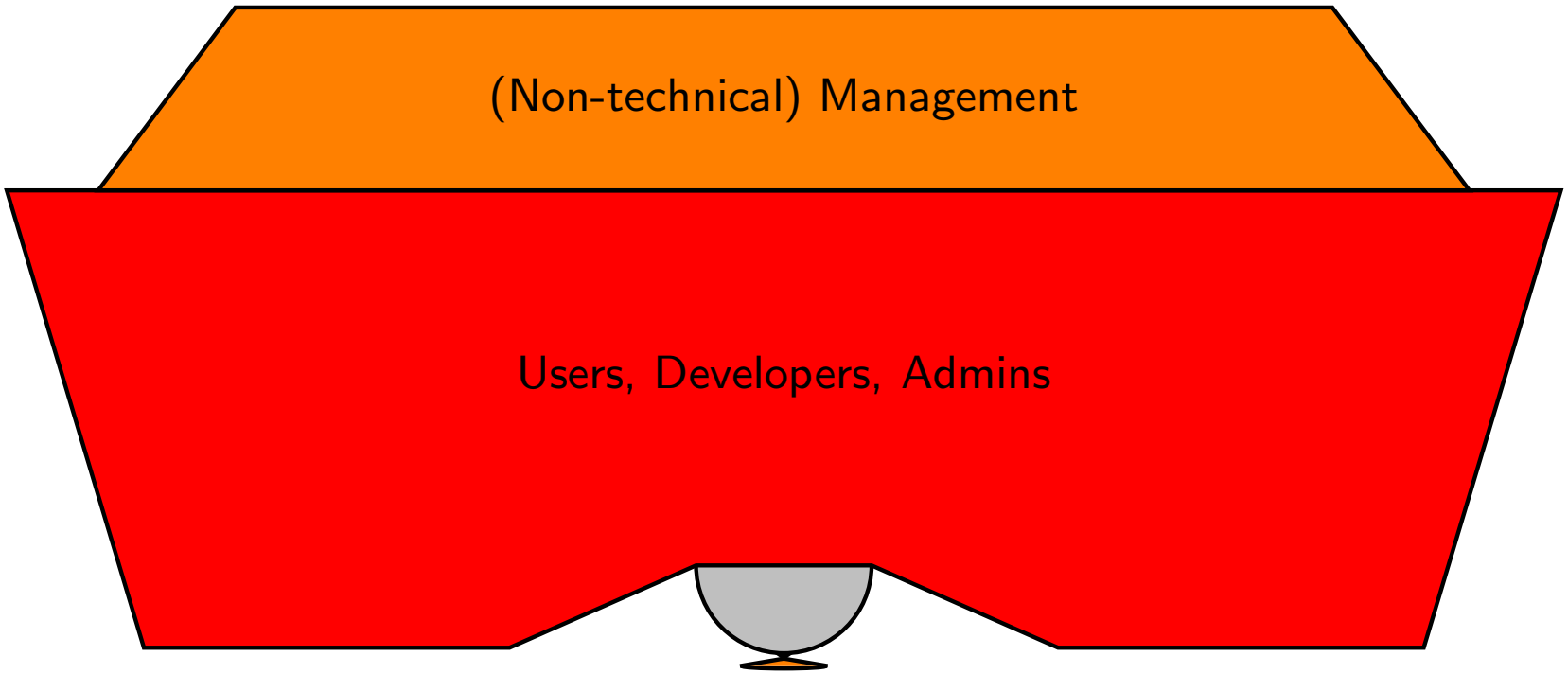

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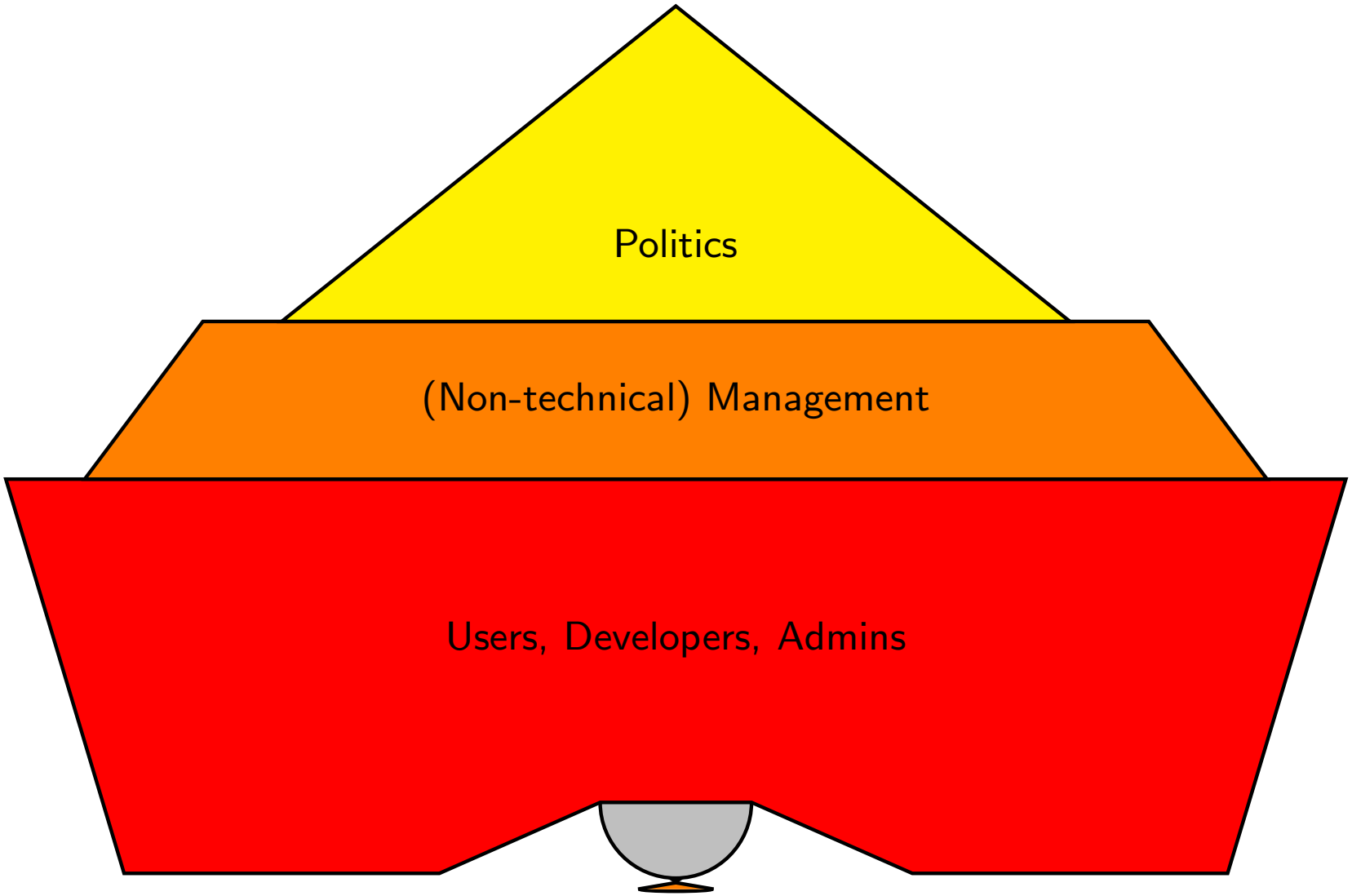

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First Things First

- Procurement
- Test/Training Environment
- Train people
- “Spy” network
- Inventarize for IPv6

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Making a Plan

- IPv6 is highly unpredictable
- Risk driven management
- Incremental deployment vs. Big Bang

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The Top Troublemakers

- Highly vertical software
- Find and fix early
- A management problem
- Really a lot of detail work

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Dealing with the Troublemakers

- Upgrade
- Replace
- Terminal servers
- Dedicated IPv4-provided subnets
- Provide IPv4 as needed (details on Wednesday)

- Avoid large scale dual-stacking

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Part II

Your Questions?

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DHCP vs. SLAAC?

- SLAAC for Layer 3
- Stateless DHCP for Layer 7

- RDNSS+DNSSL for Android
- Stateless DHCP for Windows before Creators Update

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Microsegmentation

- Do it. Seriously.

- Separate by security privileges
- Point-to-point can make sense

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Address Plan

- Overall goals
  - Simplicity
  - Comprehensiveness
  - Flexibility
- Prefixes
  1. Use no more than 1/8 or 1/16 of your allocation
  2. Allocate aggregate prefixes by “site”
  3. Allocate by security profile
- Interface IDs
  - Suggestion: Global counter(s)
  - Suggestion: Separate ranges for routers and hosts
  - Don’t reuse

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Part III

Epilogue

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