

ALTO VPN Service

draft-scharf-alto-vpn-service-00

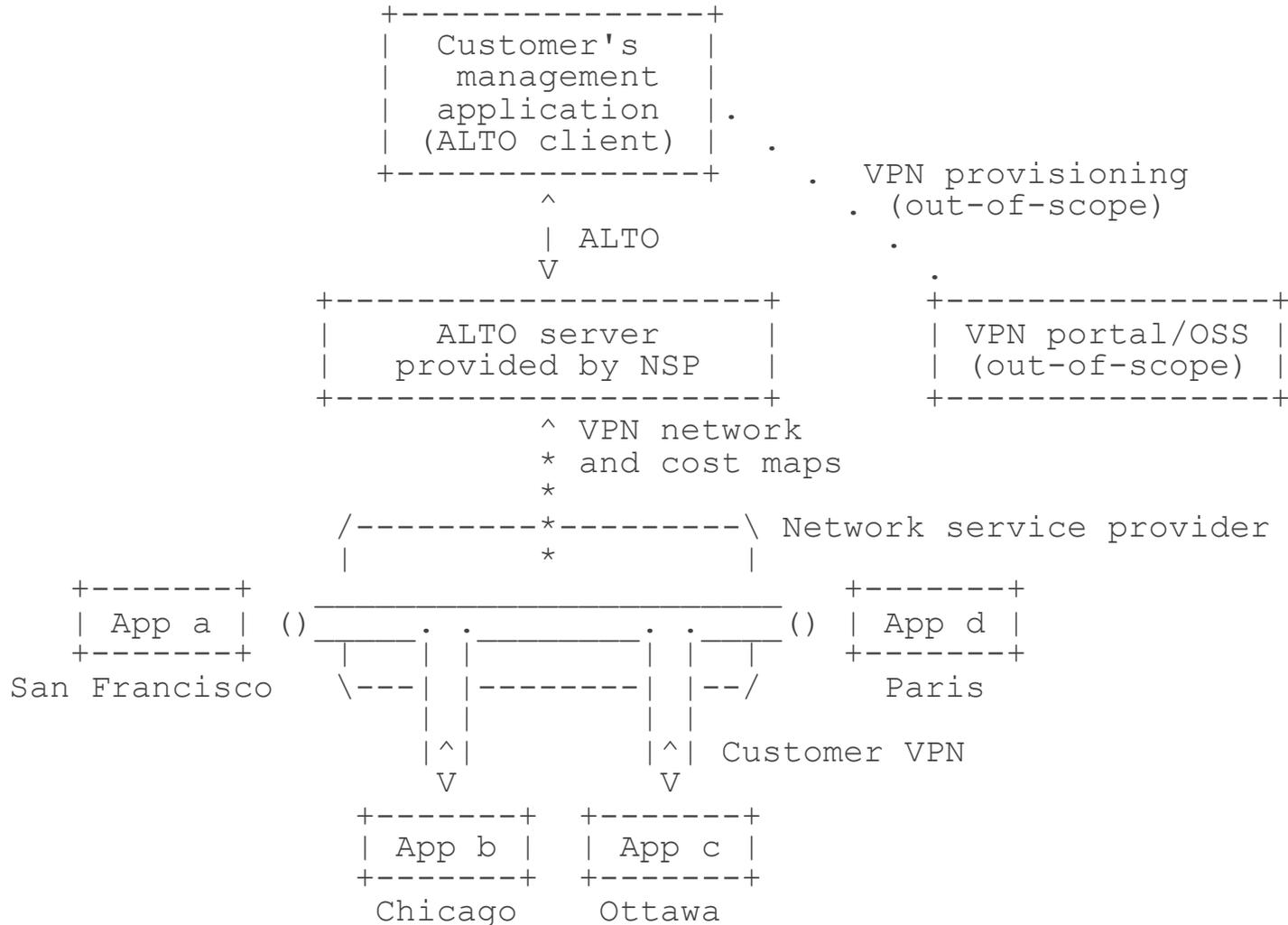
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ALTO Guidance in Provider-Supplied VPNs



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VPNs vs. Public Internet

- **Types of provider-supplied VPNs**

- L3VPN: VPN sites all have IP subnet ranges
- L2VPN: VPN sites form part of flat sub-IP network
- Others (e. g., pseudo-wires): Transparent tunnels

- **Differences to public Internet**

- Addressing - VPN sizes may not have meaningful address
- Overlay over the MPLS/IP core, not only using IGP/EGP routing
- No connectivity to sites not already attached to the VPN (i. e., app-level measurement not possible at all in certain cases)
- Topology is customer-specific and must only be exposed to authorized users
- Better ALTO guidance possible due to controlled environment (typically single AS)

- **Benefits of ALTO guidance**

- Avoid the overhead and issues of per-application measurements
- Expose information not measurable (e. g., cost to unconnected VPN sites)

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Overview of Use Cases

- **Use case 1: Application guidance in an L3VPN**
 - Example 1: ALTO guidance between VPN sites (IP addresses possible)
 - Example 2: Non-measurable VPN parameters (e. g., redundancy)
 - Example 3: VPNs with multiple uplinks
- **Use case 2: Application guidance in an L2VPN**
 - Example 4: ALTO guidance between VPN sizes (IP/MAC addresses not possible)
- **Use case 3: VPN guidance without addresses**
 - Example 5: ALTO guidance between VPN sizes (no address at all)
 - Example 6: VPN size lookup based on geographical coordinates
- **Use case 4: Extending the VPN**
 - Example 7: ALTO costs to destinations currently not reachable
- **Use case 5: Shrinking the VPN**
 - Example 8: VPN site consolidation
- **Use case 6: VPN selection**
 - Example 9: Selection among several VPN candidates

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Requirements and Gap Analysis

- REQ 1: Minimum changes to ALTO ✓
- REQ 2: No exposure of network service provider internal addressing ✓
- REQ 3: Use of PID concept ✓
- REQ 4: Different VPN types, not L3VPNs only ✗
- REQ 5: IP addresses not the only form of network identification ✗
- REQ 6: IP address are not globally routable or unique ?
- REQ 7: Attributes for VPN sites, e. g., geographic coordinates ✗ (but in charter)
- REQ 8: ALTO filters for attributes, e. g., geographic coordinates ✗ (but in charter)
- REQ 9: PID selection based on geographic coordinates ✗ (but in charter)
- REQ 10: Extension/shrinking of VPN resources ✗
- REQ 11: Exposure only to authorized users of the VPN ?

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Impact on ALTO

- **Draft -00: Motivation, problem statement, and requirements**
 - Obvious solutions seem to exist (mostly mentioned in charter or base spec)
 - Interest in feedback before proposing a specific syntax/semantic
 - **Potential for a *generic* ALTO extension**
 - Decoupling of PIDs from addresses (mentioned in charter)
 - Attributes for PIDs, in particular geographic addresses (mentioned in charter)
 - Extended endpoint property service for lookup (obvious lookups)
 - More *VPN-specific* features to be discussed in WG
- **Minor, generic, well-focused ALTO extension**
- **Orthogonal to other suggestions (e. g., new cost types)**