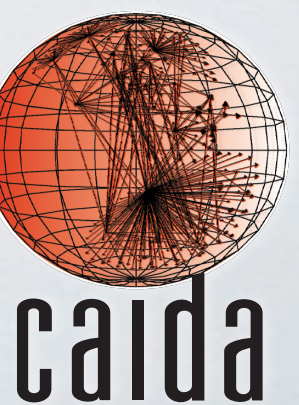


Scamper + RouteViews

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AIMS-KISMET 2020

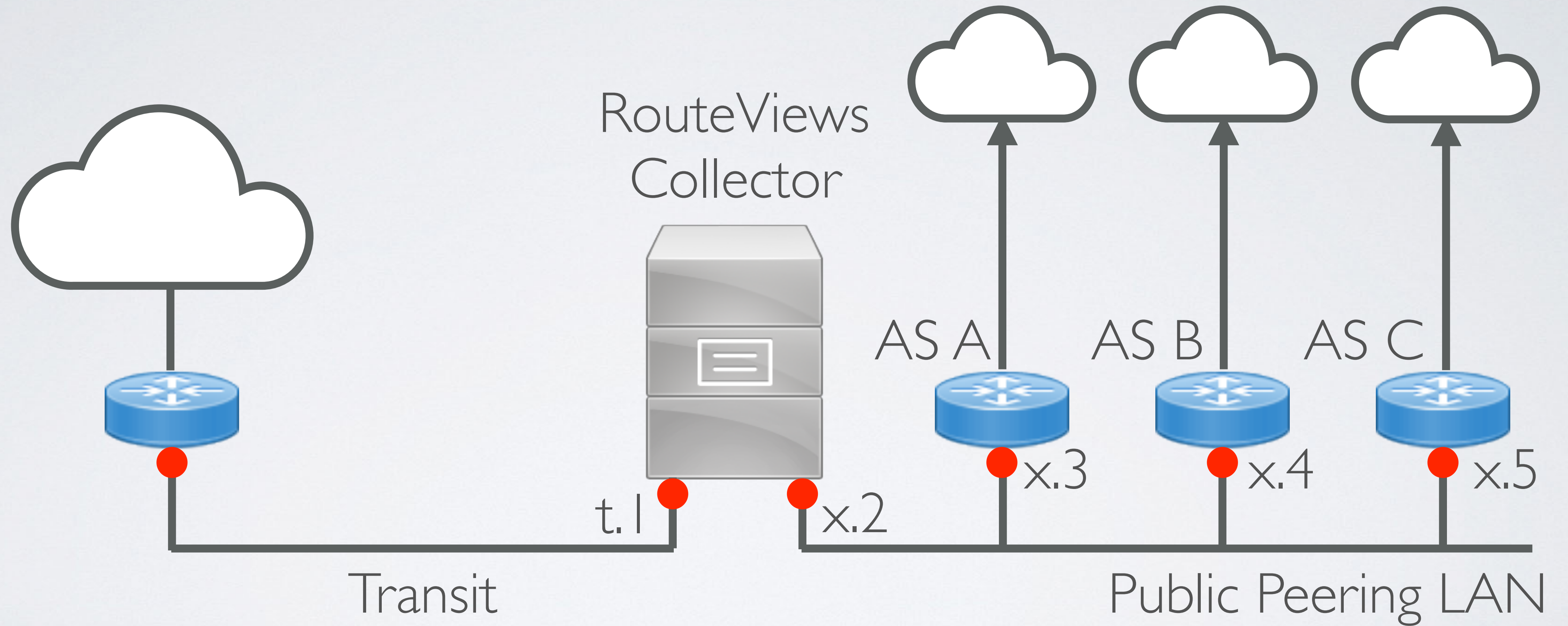


Motivation

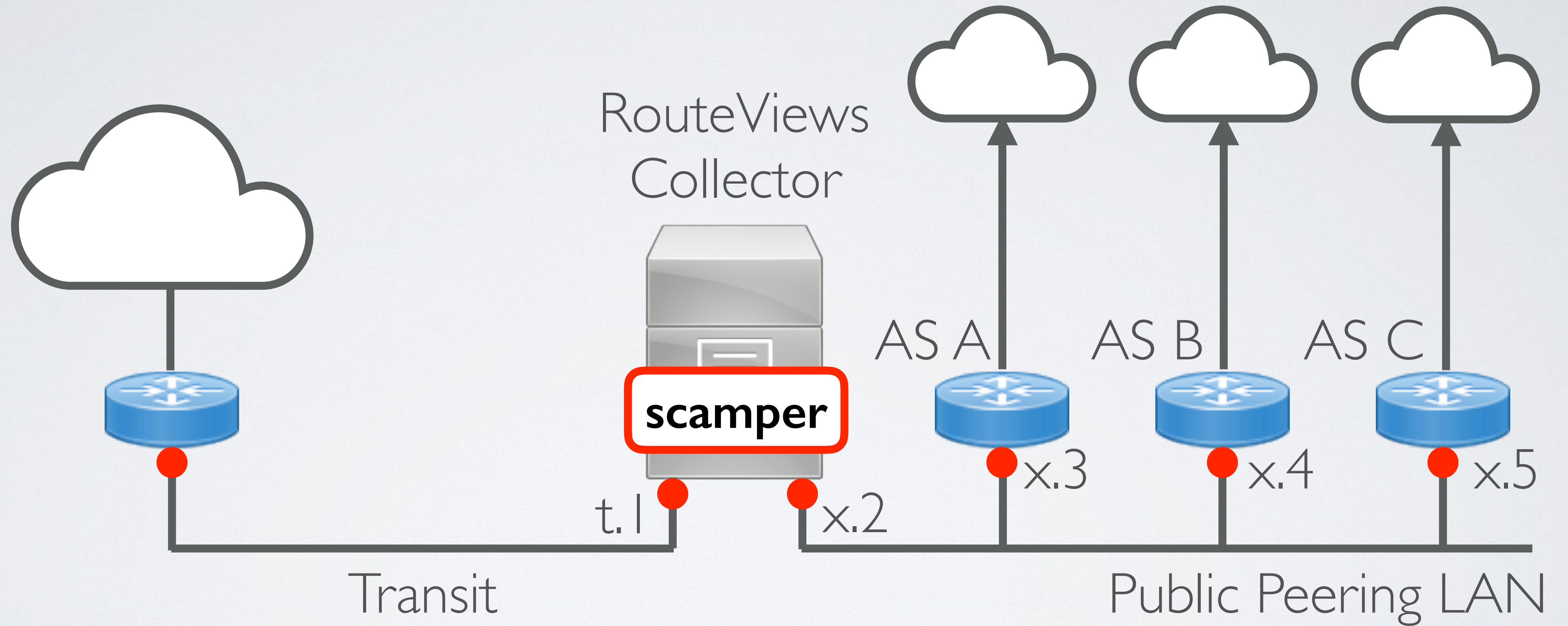
(Why would anyone want to install scamper on a RouteViews Collector?)

- Researchers want to understand how congruent the control and data planes are.
- IXPs provide the ability to obtain active measurement vantage points from multiple (hundreds of) ASes.
 - Current model is we need a separate physical probe in each different AS

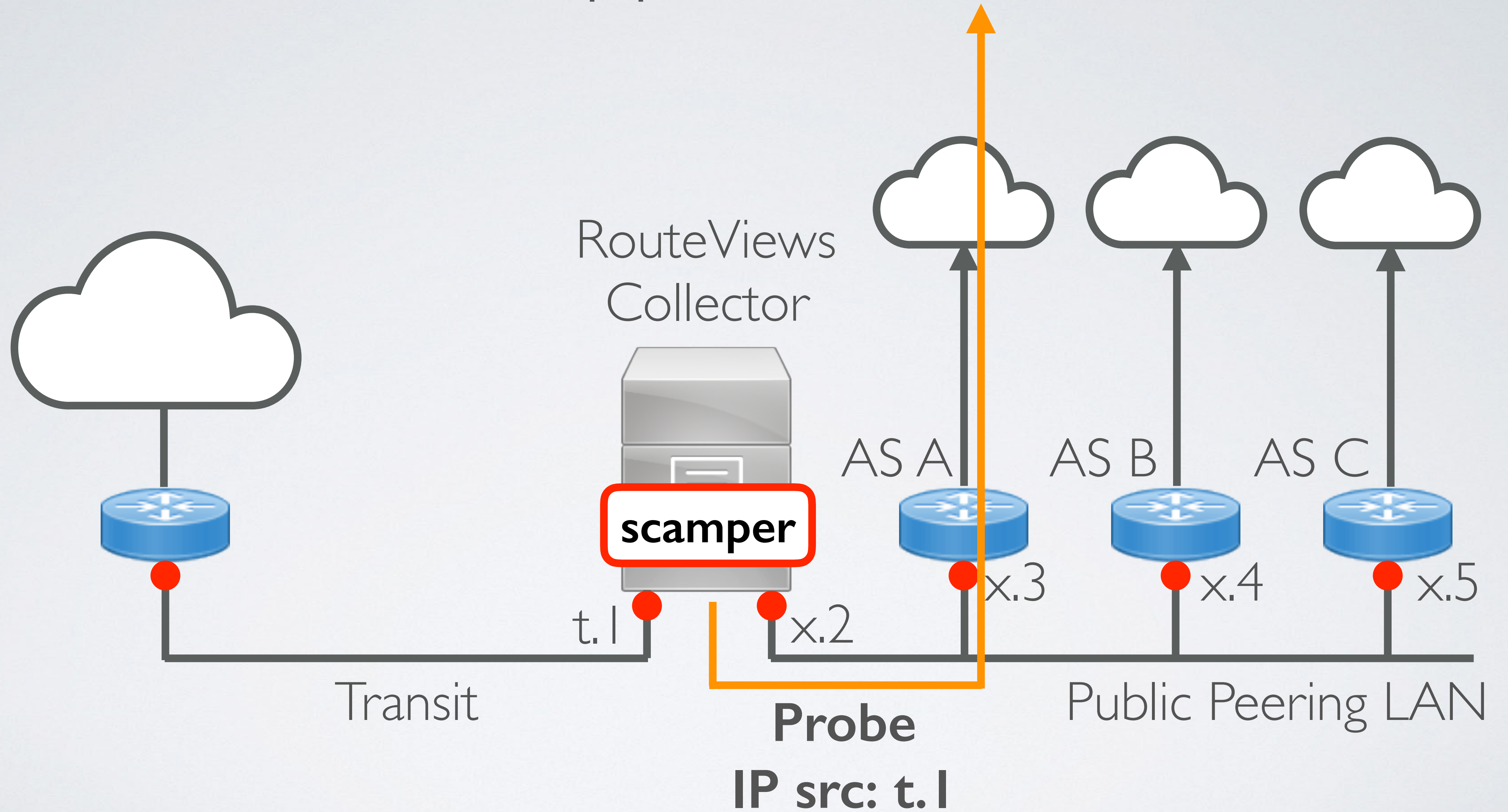
Approach



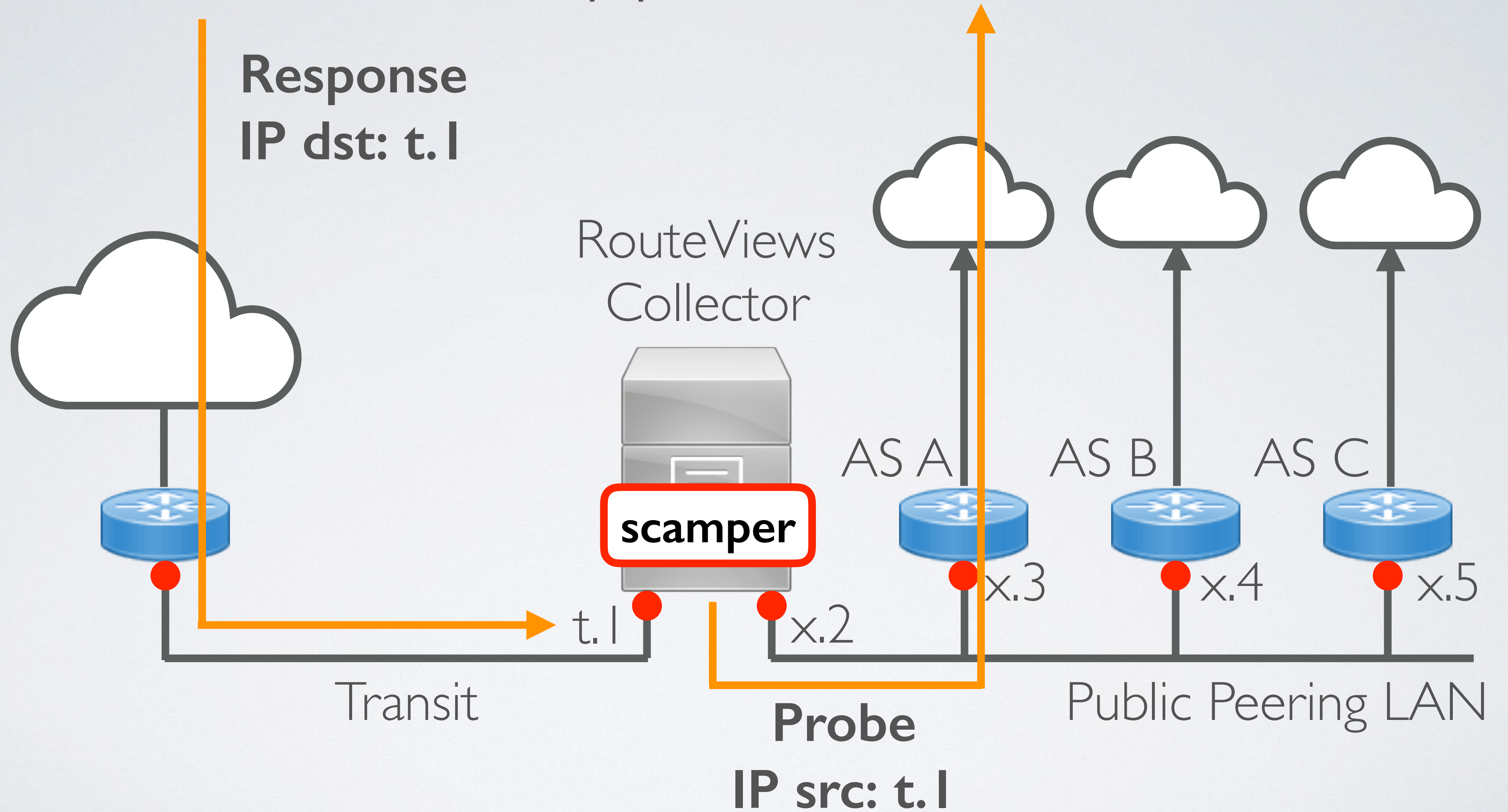
Approach



Approach



Approach



```
$ scamper -I "trace -r 187.16.221.193 128.223.60.66"
```

```
traceroute from 200.160.6.203 to 128.223.60.66
```

```
 1 187.16.221.193 1.353 ms
 2 170.238.232.17 104.807 ms
 3 170.238.232.14 111.561 ms
 4 38.142.193.25 104.316 ms
 5 154.24.12.101 103.960 ms
 6 154.54.85.129 105.849 ms
 7 154.54.84.1 132.743 ms
 8 154.54.44.230 137.841 ms
 9 154.54.3.214 148.269 ms
10 154.54.31.89 159.375 ms
11 154.54.42.97 170.053 ms
12 154.54.86.110 189.869 ms
13 154.54.42.150 193.477 ms
14 38.142.108.50 182.455 ms
15 207.98.64.170 186.346 ms
16 207.98.68.178 190.574 ms
17 *
18 128.223.60.2 191.303 ms
19 128.223.60.66 190.707 ms
```

traceroute from collector in
Sao Paulo to
teach.uoregon.edu via
187.16.221.193 (AS37468)

100ms gap is response
returning to the collector
via NYC

```
$ scamper -I "trace -r 187.16.219.51 128.223.60.66"
```

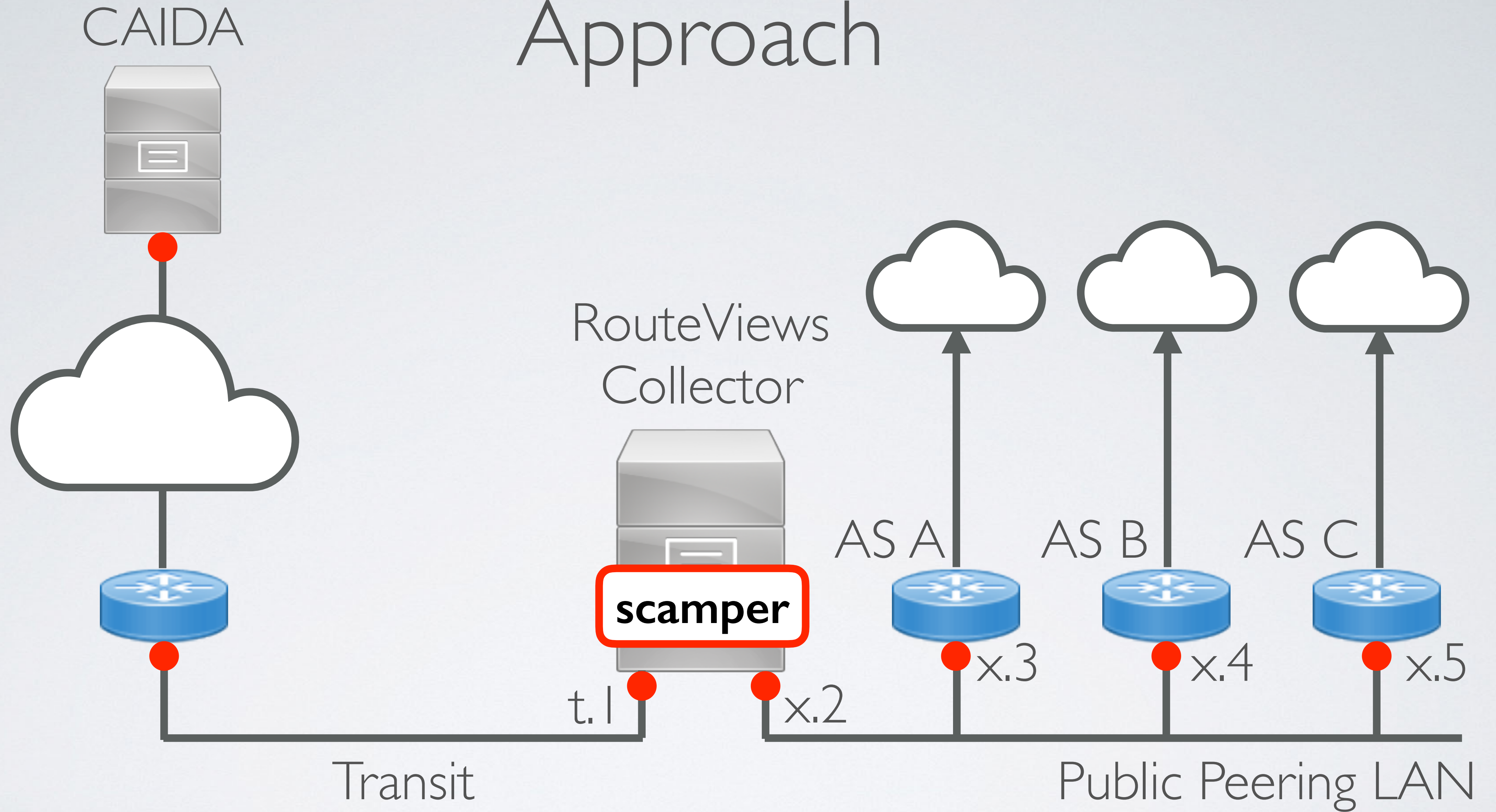
```
traceroute from 200.160.6.203 to 128.223.60.66
```

```
1 187.16.219.51 32.582 ms
2 176.52.252.196 33.338 ms
3 94.142.98.171 46.627 ms
4 94.142.98.153 116.980 ms
5 *
6 4.69.140.161 180.758 ms
7 4.53.200.2 190.703 ms
8 207.98.64.192 192.350 ms
9 207.98.64.201 190.804 ms
10 207.98.68.178 204.075 ms
11 *
12 128.223.60.3 190.452 ms
13 128.223.60.66 190.366 ms
```

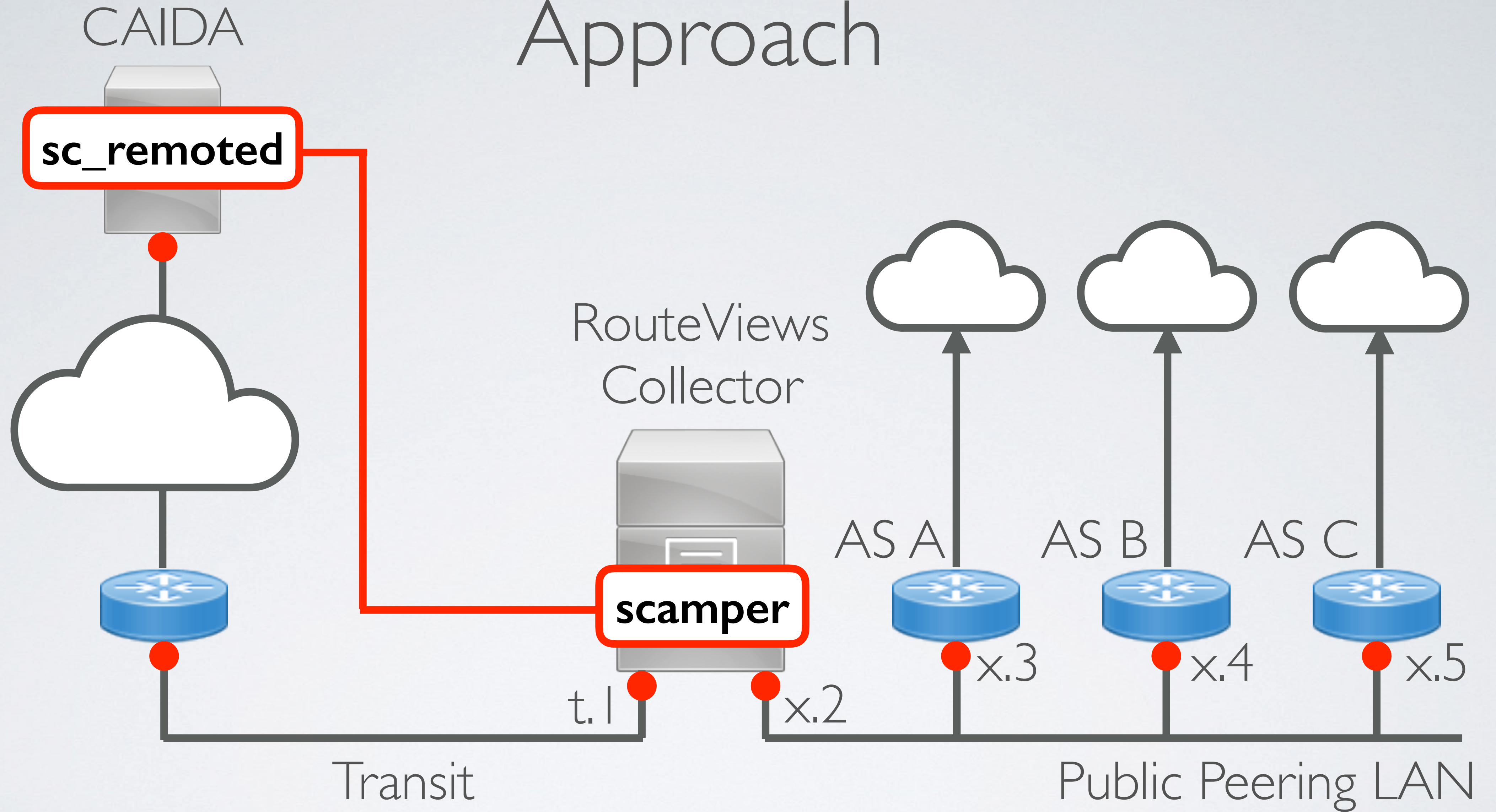
traceroute from collector in
Sao Paulo to
teach.uoregon.edu via
187.16.219.51 (AS28186)

30ms gap is response
returning to the collector
via in-country transit

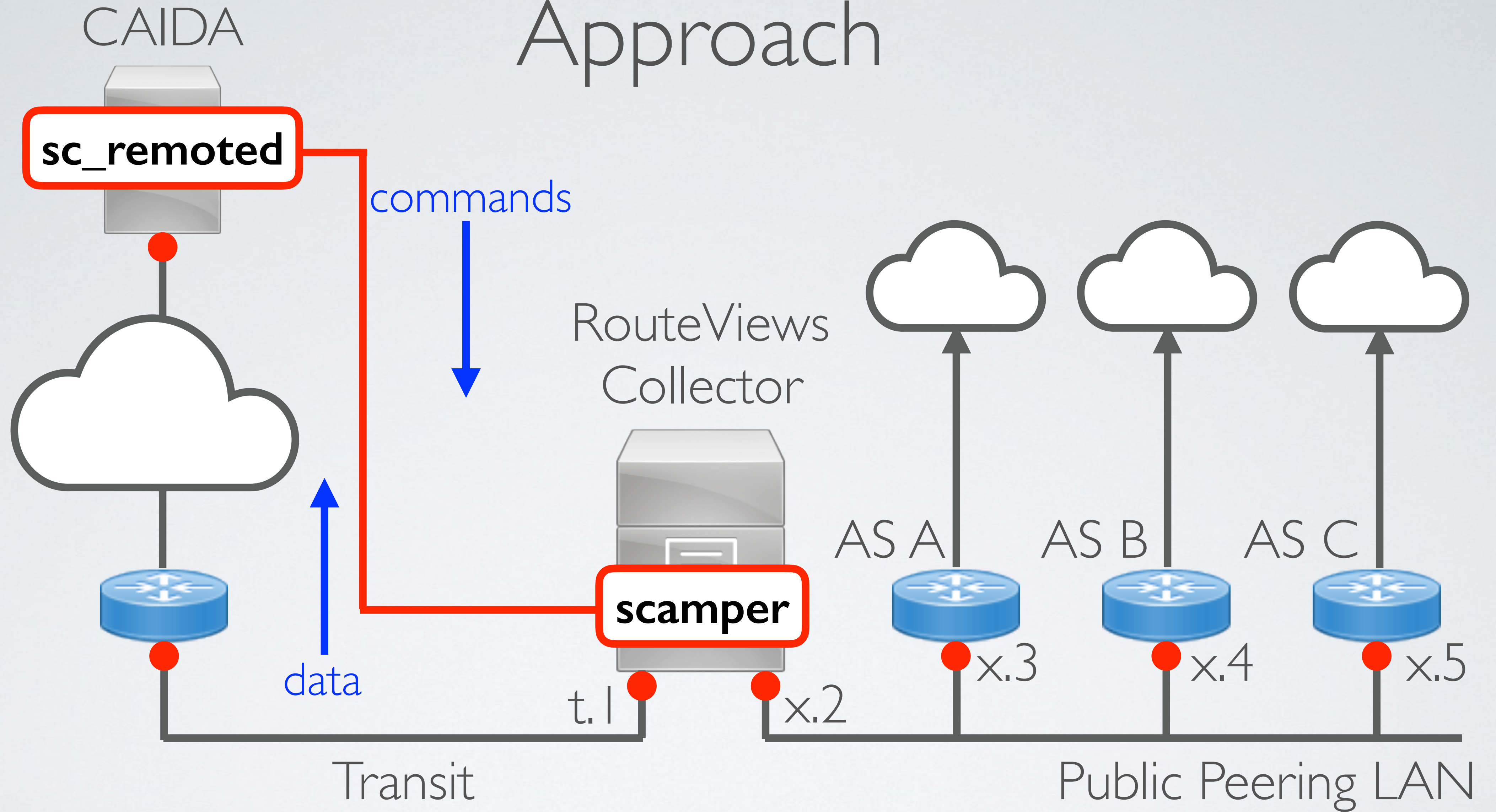
Approach



Approach



Approach



Some details

1. Remote Controller

```
sc_remoted -P 31337 -U /path/to/socket-directory
```

2. Vantage Point

```
scamper -M mjl-house -R sorcerer.caida.org:31337
```

3. Remote Controller

```
socket-directory$ ls -l
srwx----- 1 mjl mjl 0 Feb 28 09:28 mjl-house-118.92.37.13:47635
srwx----- 1 mjl mjl 0 Feb 28 09:30 mjl-laptop-169.228.185.204:50122
```

Some details

4. Remote Controller

```
$ echo "ping 8.8.8.8" |  
  sc_attach -R mjl-house-118.92.37.13\:47635 -i - -o - |  
  sc_warts2text  
ping 192.168.3.25 to 8.8.8.8: 84 byte packets  
84 bytes from 8.8.8.8, seq=0 ttl=57 time=37.504 ms  
84 bytes from 8.8.8.8, seq=1 ttl=57 time=37.601 ms  
84 bytes from 8.8.8.8, seq=2 ttl=57 time=37.252 ms  
84 bytes from 8.8.8.8, seq=3 ttl=57 time=37.362 ms  
--- 8.8.8.8 ping statistics ---  
4 packets transmitted, 4 packets received, 0% packet loss  
round-trip min/avg/max/stddev = 37.252/37.429/37.601/0.133 ms
```

Work Done

- Modifications to scamper to probe via a specified router (easy)
- Modifications to the remote controller code to make it robust to TCP connections between scamper and sc_remoted being broken
 - Idea: make short-term disconnections transparent to any users of the remote control socket
 - Not easy but done now