

Time Servers and Time Sources

Establishing best practices for
documenting dataset time sources

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Background

- Several data types have timestamps but no spatial information
 - Met
 - Thermosalinograph
 - pco2
- Processed raw navigation can be used to assign lat/lons based on timestamp



Example

```
# R/V Sproul MET System, CRUISE:SP1619
# Sat 10-Sep-16 00:00:13
# Met Data - Corrected
#Time    AT    BP    BS
000013   21.04   1013.19  1014.37 ...
000028   21.01   1013.19  1014.37 ...
000043   20.99   1013.19  1014.36 ...
000058   20.95   1013.19  1014.37 ...
000113   20.84   1013.20  1014.38 ...
000128   20.76   1013.19  1014.37 ...
000143   20.74   1013.19  1014.37 ...
000158   20.74   1013.19  1014.37 ...
```



Example

```
2016-09-10T00:00:12Z -117.236733 32.707683
2016-09-10T00:00:13Z -117.236735 32.707683
2016-09-10T00:00:14Z -117.236733 32.707683
2016-09-10T00:00:15Z -117.236735 32.707683
2016-09-10T00:00:16Z -117.236733 32.707683
2016-09-10T00:00:17Z -117.236735 32.707683
2016-09-10T00:00:18Z -117.236735 32.707683
2016-09-10T00:00:19Z -117.236735 32.707680
2016-09-10T00:00:20Z -117.236735 32.707683
2016-09-10T00:00:21Z -117.236735 32.707683
2016-09-10T00:00:22Z -117.236735 32.707683
2016-09-10T00:00:23Z -117.236735 32.707683
2016-09-10T00:00:24Z -117.236737 32.707683
2016-09-10T00:00:25Z -117.236737 32.707683
2016-09-10T00:00:26Z -117.236737 32.707683
2016-09-10T00:00:27Z -117.236738 32.707683
2016-09-10T00:00:28Z -117.236738 32.707683
2016-09-10T00:00:29Z -117.236738 32.707683
2016-09-10T00:00:30Z -117.236738 32.707680
2016-09-10T00:00:31Z -117.236738 32.707682
2016-09-10T00:00:32Z -117.236738 32.707680
2016-09-10T00:00:33Z -117.236738 32.707682
2016-09-10T00:00:34Z -117.236738 32.707680
2016-09-10T00:00:35Z -117.236738 32.707682
2016-09-10T00:00:36Z -117.236738 32.707680
2016-09-10T00:00:37Z -117.236738 32.707682
2016-09-10T00:00:38Z -117.236738 32.707680
2016-09-10T00:00:39Z -117.236738 32.707682
2016-09-10T00:00:40Z -117.236738 32.707678
2016-09-10T00:00:41Z -117.236738 32.707680
2016-09-10T00:00:42Z -117.236738 32.707678
2016-09-10T00:00:43Z -117.236738 32.707682
2016-09-10T00:00:44Z -117.236738 32.707678
2016-09-10T00:00:45Z -117.236738 32.707680
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000113   20.84   1013.20  1014.38 ...
000128   20.76   1013.19  1014.37 ...
000143   20.74   1013.19  1014.37 ...
000158   20.74   1013.19  1014.37 ...
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2016-09-10T00:00:27Z -117.236738 32.707683
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000113 20.84 1013.20 1014.38 ...
000128 20.76 1013.19 1014.37 ...
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000143 20.74 1013.19 1014.37 ...
000158 20.74 1013.19 1014.37 ...
```

Problem: this assumes the two clocks are the same.

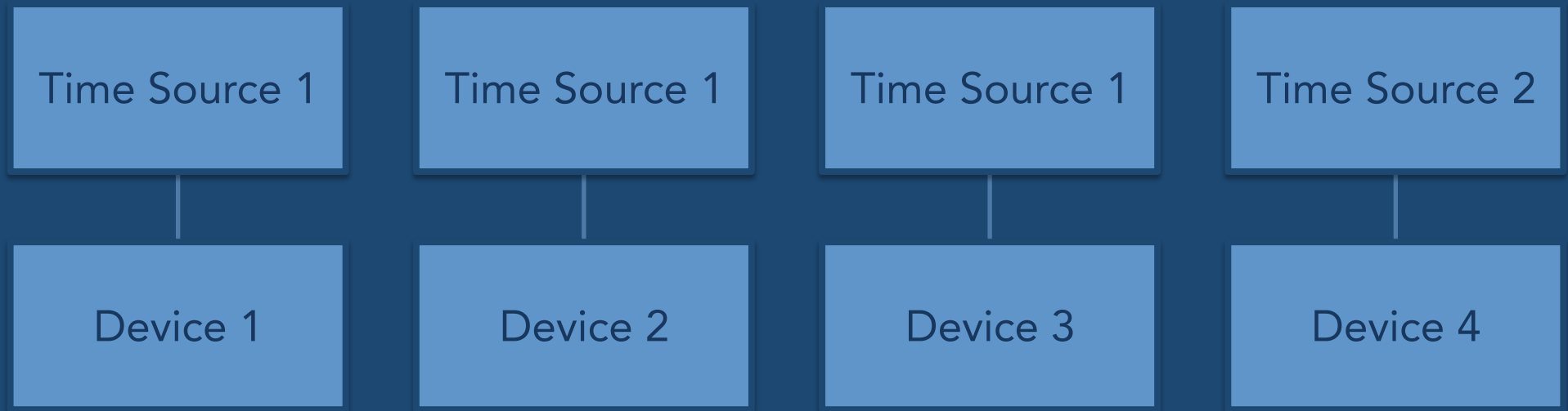


Solution

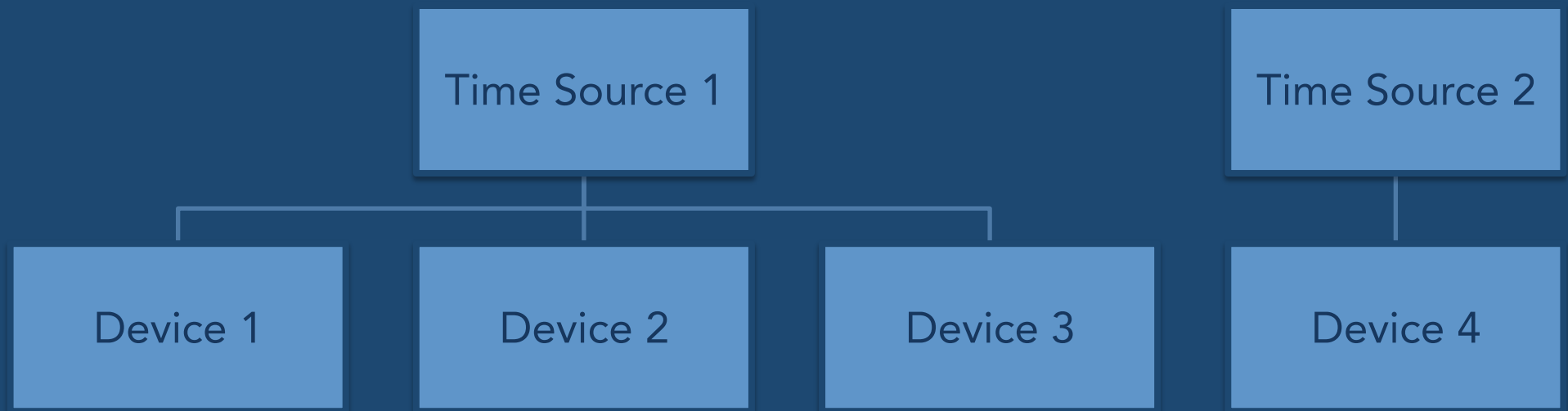
- Keep a record of time sources as a device
 - Time Server
 - GPS Unit
 - Serial Port Aggregator
 - Acquisition System Computer
- Each device has an id of the parent time source



Solution



Solution



Discussion

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