

A More Sophisticated Line Chart



Chris B. Behrens

SOFTWARE ARCHITECT

@chrisbbehrens www.chrisbehrens.rocks



Interpolation



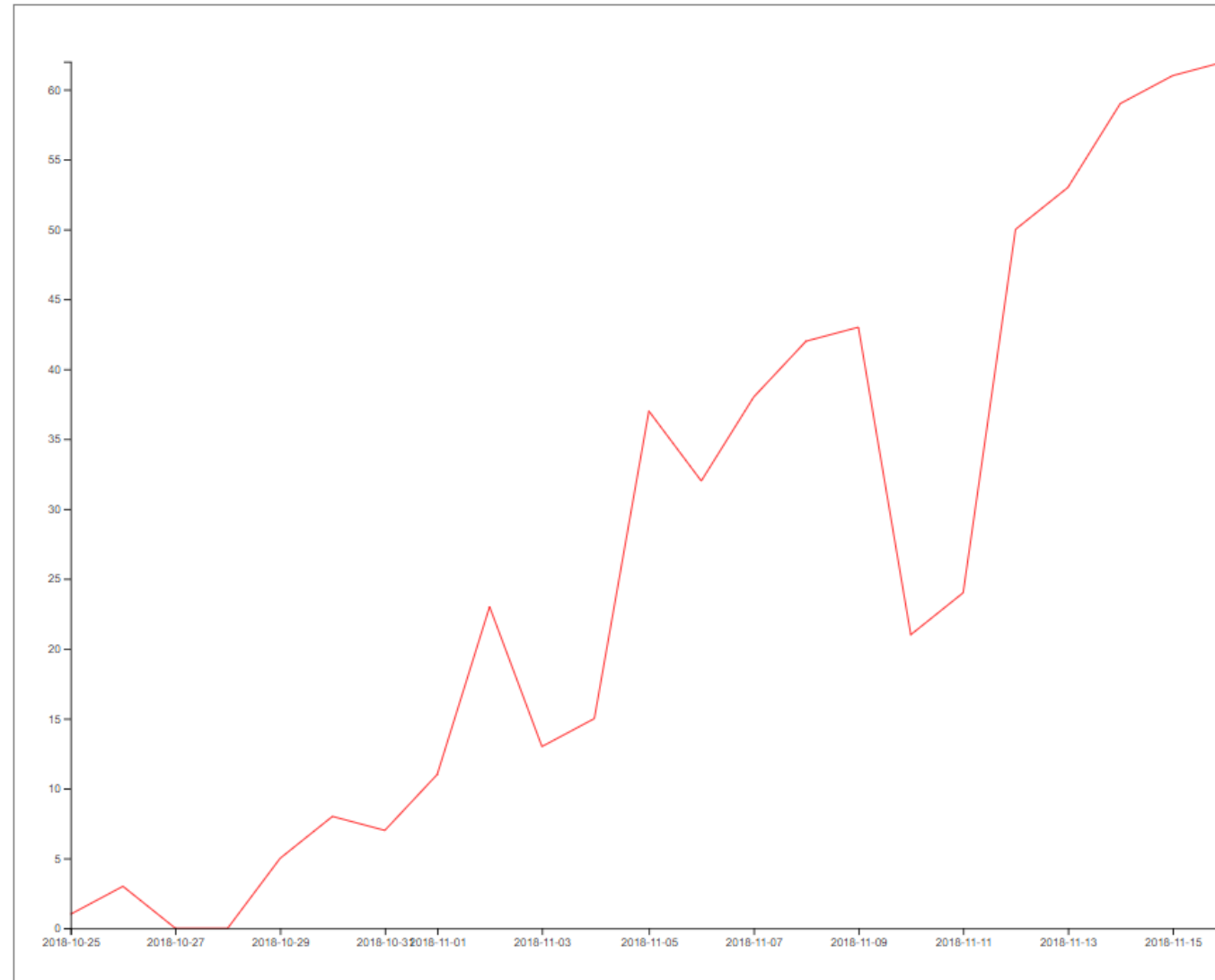
Interpolation

Inter - between

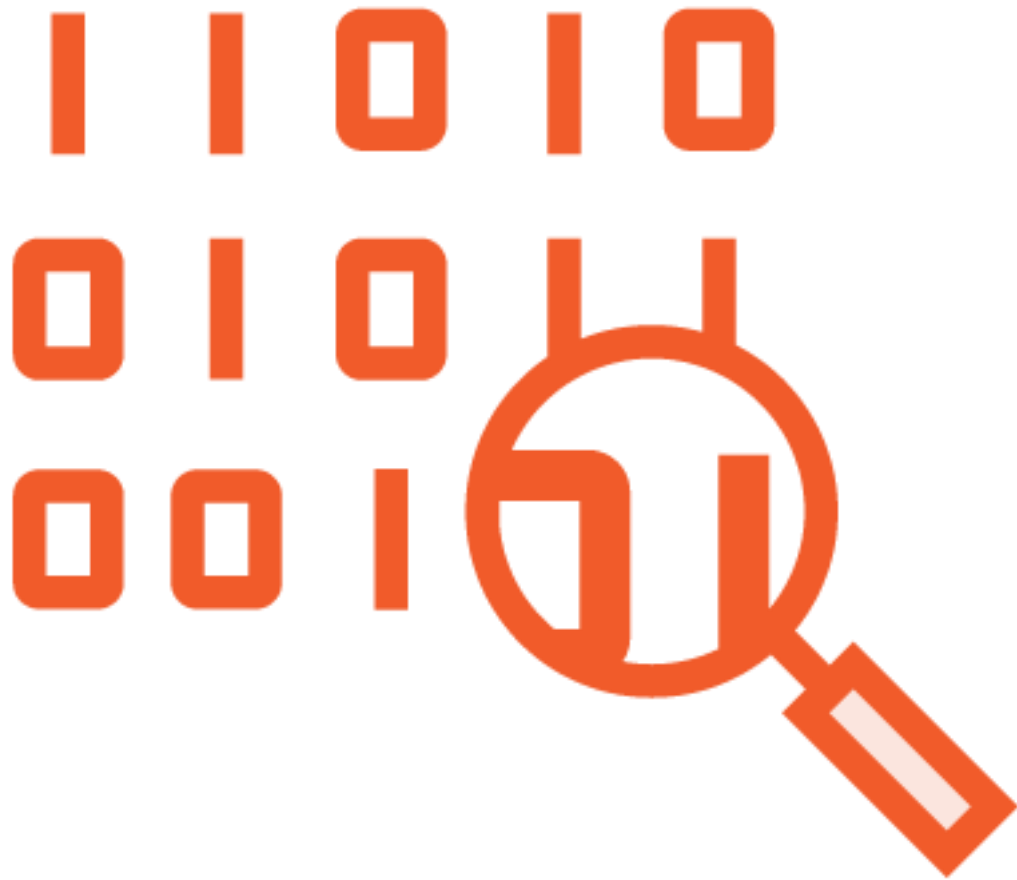
Polare - to have polished



Our Line Chart



Sampling



```
var data = [{ date: "10/25/2018", value1: 1, value2: 0 },  
{ date: "10/26/2018", value1: 3, value2: 0 },  
{ date: "10/27/2018", value1: 0, value2: 25 },  
{ date: "10/28/2018", value1: 0, value2: 62 },  
{ date: "10/29/2018", value1: 5, value2: 5 },  
{ date: "10/30/2018", value1: 8, value2: 37 },  
{ date: "10/31/2018", value1: 7, value2: 12 },  
{ date: "11/01/2018", value1: 11, value2: 55 },  
{ date: "11/02/2018", value1: 23, value2: 44 },  
{ date: "11/03/2018", value1: 13, value2: 53 },  
{ date: "11/04/2018", value1: 15, value2: 18 },  
{ date: "11/05/2018", value1: 37, value2: 12 },  
{ date: "11/06/2018", value1: 32, value2: 60 },  
{ date: "11/07/2018", value1: 38, value2: 60 },  
{ date: "11/08/2018", value1: 42, value2: 60 },  
{ date: "11/09/2018", value1: 43, value2: 3 },  
{ date: "11/10/2018", value1: 21, value2: 3 },  
{ date: "11/11/2018", value1: 24, value2: 2 },  
{ date: "11/12/2018", value1: 50, value2: 15 },  
{ date: "11/13/2018", value1: 53, value2: 3 },  
{ date: "11/14/2018", value1: 59, value2: 15 },  
{ date: "11/15/2018", value1: 61, value2: 3 },  
{ date: "11/16/2018", value1: 62, value2: 19 }];
```

A discrete measurement

- Beginning at 11:02:32
- Completed at 11:02:34

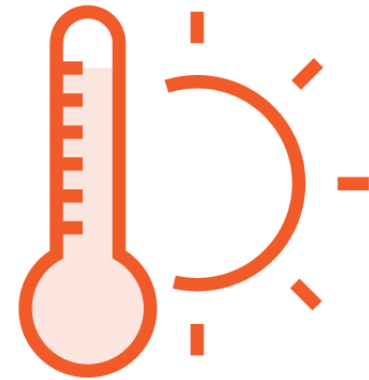
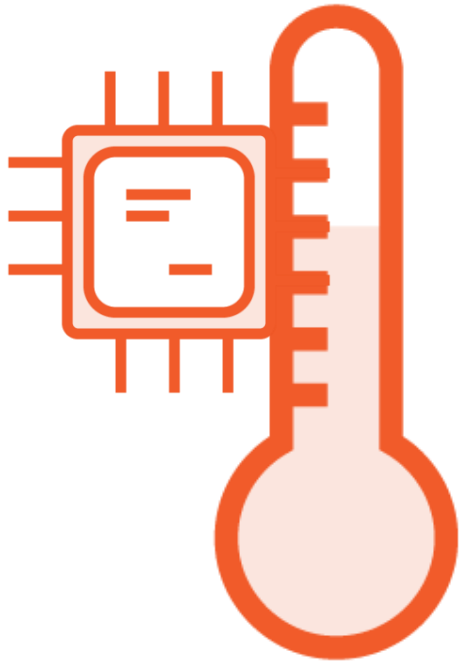
A continuous measurement

- Values averaged?

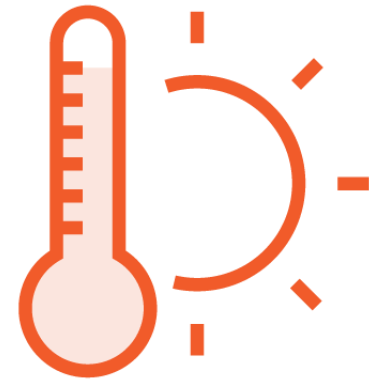
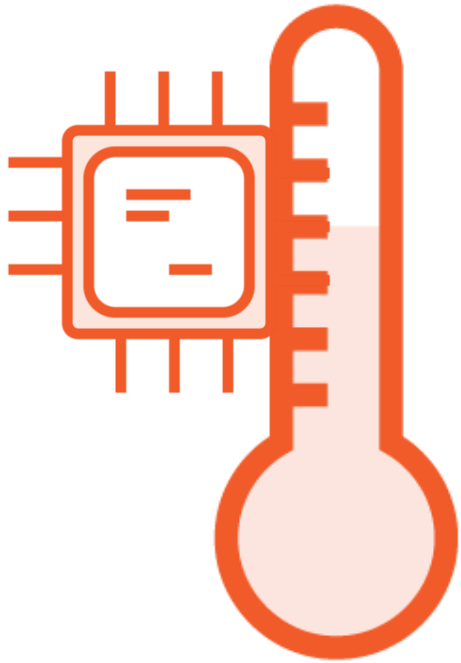
Is it collected at the same time everyday?



A Data Sampling Story



A Data Sampling Story



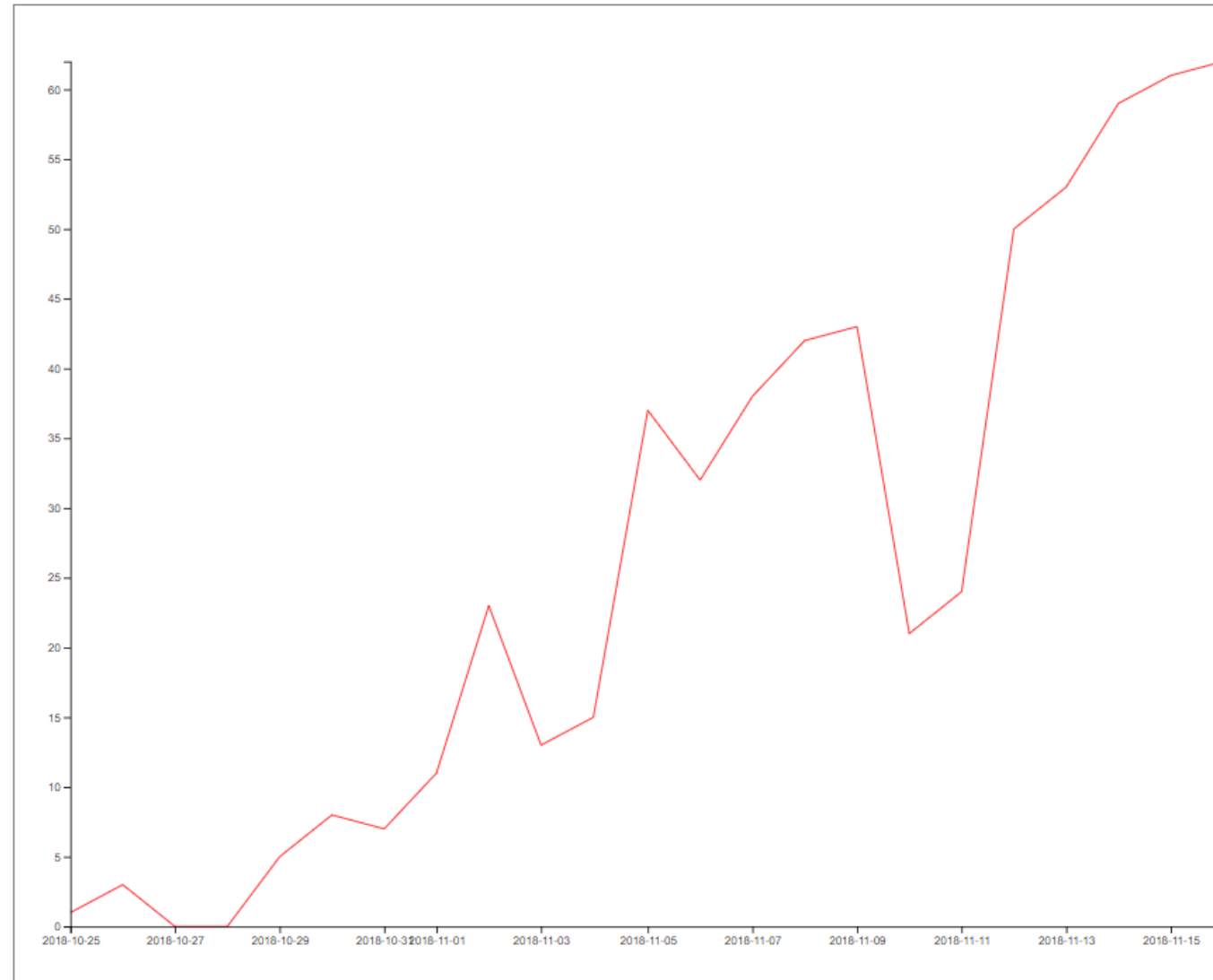
Sampling Matters

**How data is collected is part
of its nature**

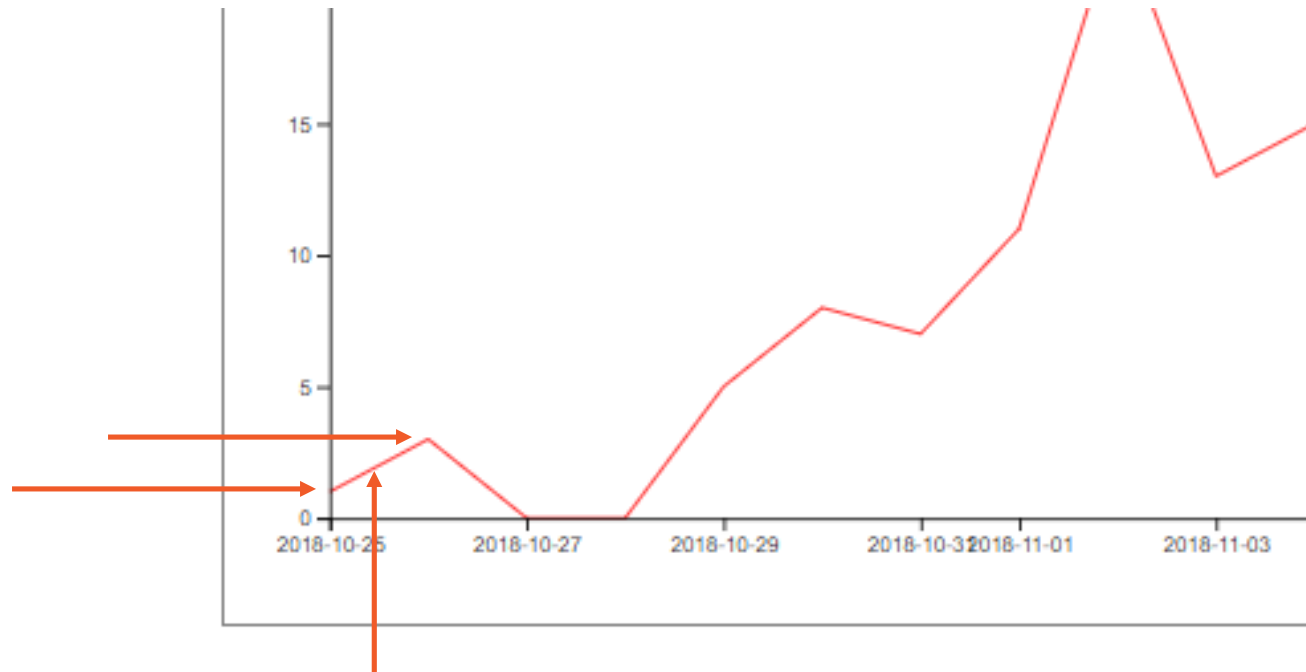
**Sampling and interpolation
methods are intertwined**



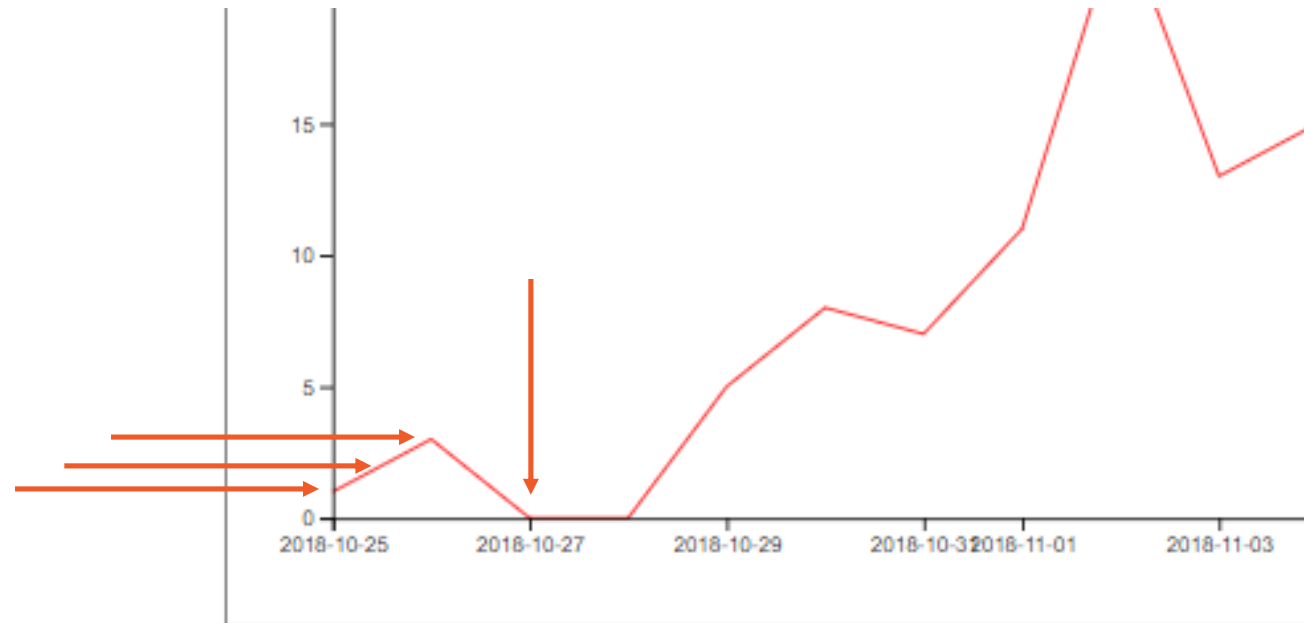
Looking at Our Interpolation



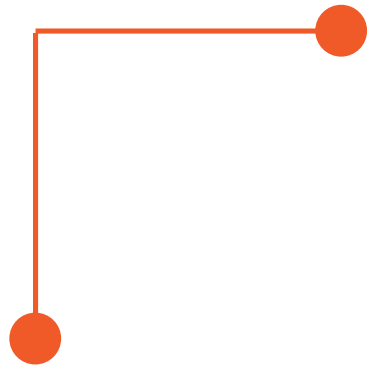
Looking at Our Interpolation



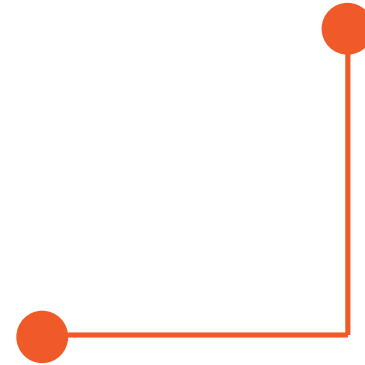
Looking at Our Interpolation



Step Interpolation



Step Before



Step After



Step

The transition from a previous data state to the next



When Was the Data Collected?



Morning inventory



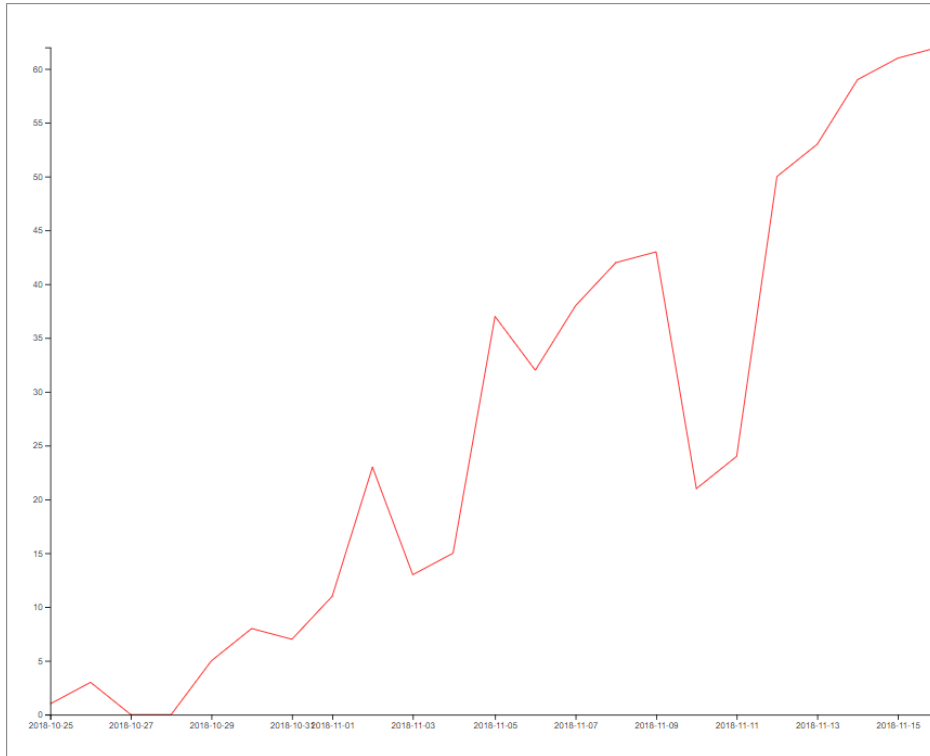
Evening inventory



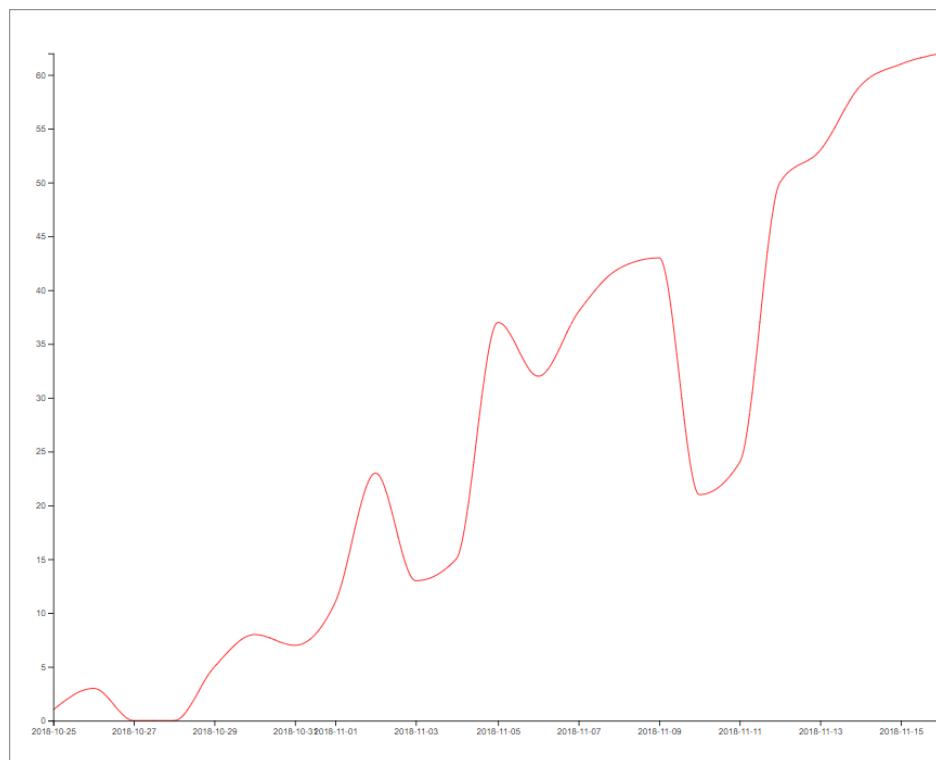
Did the step occur before or after the sample?



Smoothing Interpolations



Smoothing Interpolations



Summary



Interpolation

- Polishing in-between the points
- Different interpolations methods
 - Linear - straight lines
 - Stepping - moving directly to the next data value
 - Before
 - After
 - Smoothing Interpolations
 - Basis
 - Cardinal
 - MonotoneX
 - Probably your best bet

Summary



Chart Embellishments

- A grab bag of improvements
- Adding a Legend
 - With tooltips
 - And other fun features
- Data Markers
 - Where data was formally collected
 - Tooltip-like title elements
 - The date
 - The value
- Gridlines
 - X and Y
 - By creating additional axes
 - How gridlines can reveal scale distortion
- Miscellaneous Chart Improvements
 - The nice function
 - Label Rotation

