Big Data for IT Operations

Omer Trajman | June 1, 2015

cloudera®

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Evolution of IT

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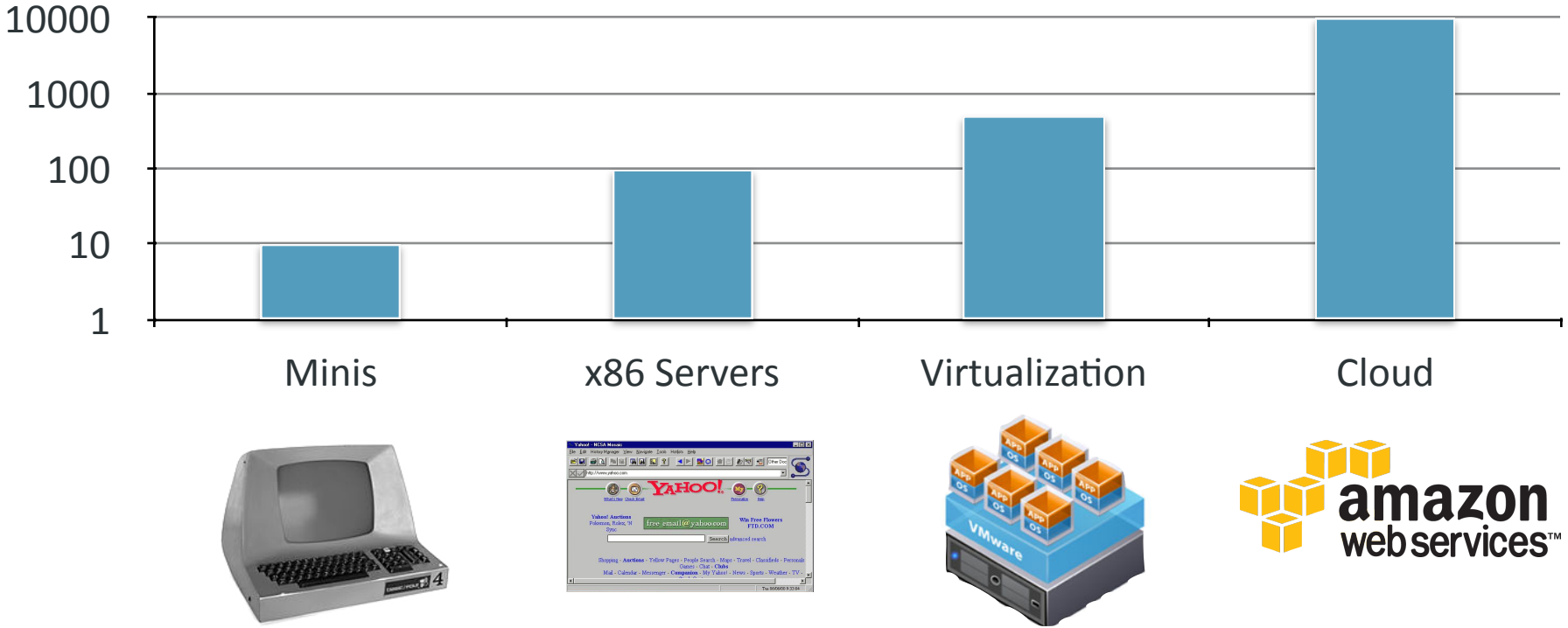
Systems Under Management per Organization (log)



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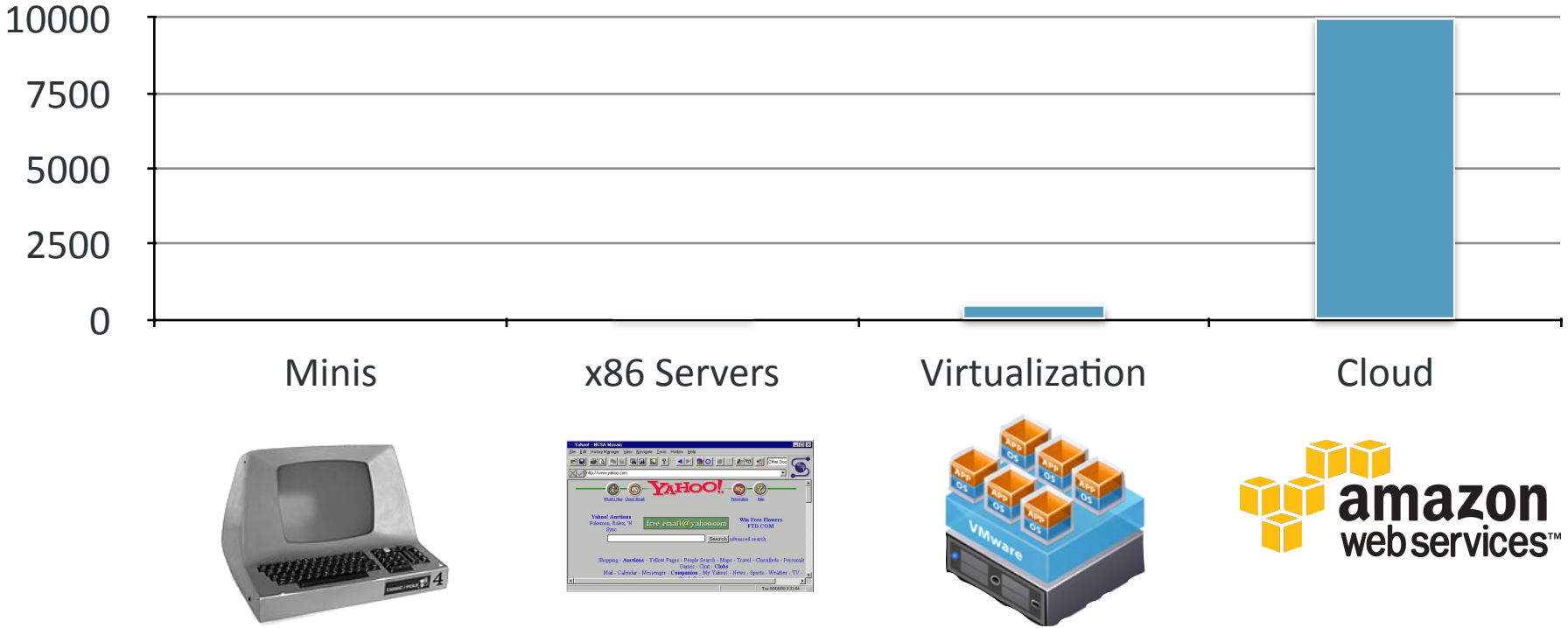
Systems Under Management per Organization



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Other Complex Systems

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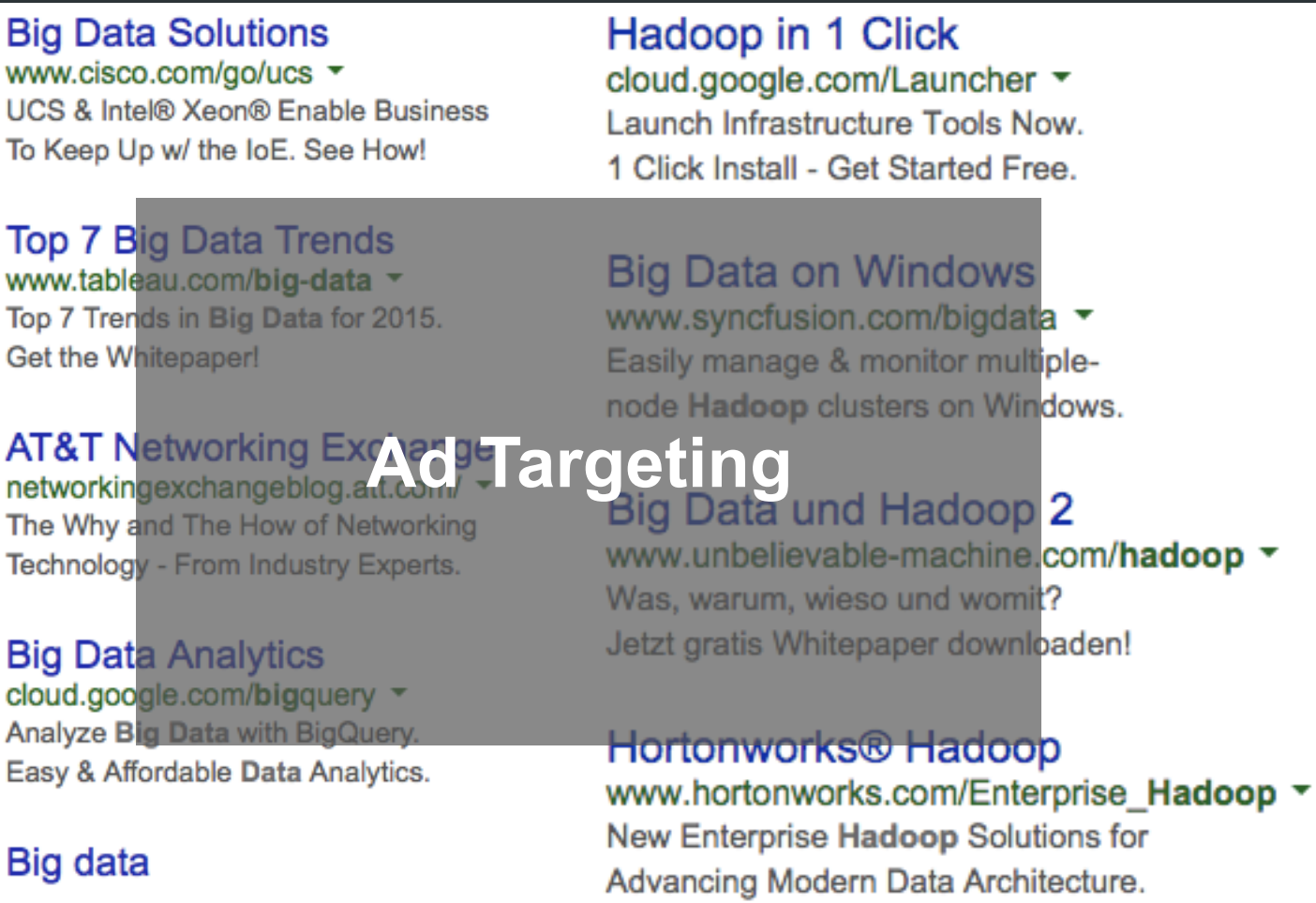

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Smith Optics I / O Recon...
(1)
$17.50 - $57.50 Prime
Some options are Prime eligible

EasyAcc® Apple iPhone 5C...
(3)
$5.99 Prime

Ibex Outdoor Clothing Men's...
(4)
$84.95 - $85.00

CanaKit Raspberry Pi Micro USB...
(54)
$7.99 Prime

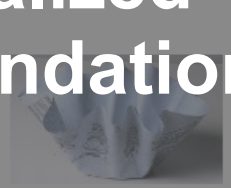
Navor 2 in 1 iPhone 5 5S Folio...
(40)
$29.50 Prime

Kootek® Micro USB Pow Supply...
(30)
$7.99 Prime

JBtek® Jet Black Case for...
(151)
$8.89 Prime

Bosch VAC003 35mm hose-to-1-1 /...
(23)
$6.97 Prime

GoPro HERO3: White Edition -...
(641)
$199.99 Prime



ShopVac 9013700 Reusable Disc...
(69)
$7.13 Prime

Linear WD500Z-1 Z-Wave 500-watt...
(89)
$34.95 Prime

iPazzPort Raspberry Pi Mini...
(659)
$14.99 Prime

Personalized Recommendations

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Visualizations

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Line charts with scrubbers and annotations

Link to this view

News Relevance | Date

- **A** US STOCKS-Dow, S&P 500 in record territory after release of Fed minutes
  Reuters UK - 1 hour ago
- **B** 10 S&P 500 Companies to Have the Biggest Profit Growth in 2015
  TheStreet.com - 7 hours ago
- **C** What Is the S&P 500 Index?
  Motley Fool - 4 hours ago
- **D** S&P 500 Trades Flat as Crude Oil Closes Below $58
  TheStreet.com - May 19, 2015
- **E** How the Dow Jones Industrial Average Fared on Tuesday
  ABC News - 23 hours ago
- **F** George Soros Increases His S&P 500 Put Position
  Seeking Alpha - 11 hours ago
- **G** S&P 500 Movers: LUV, CVC
  Forbes - 5 hours ago

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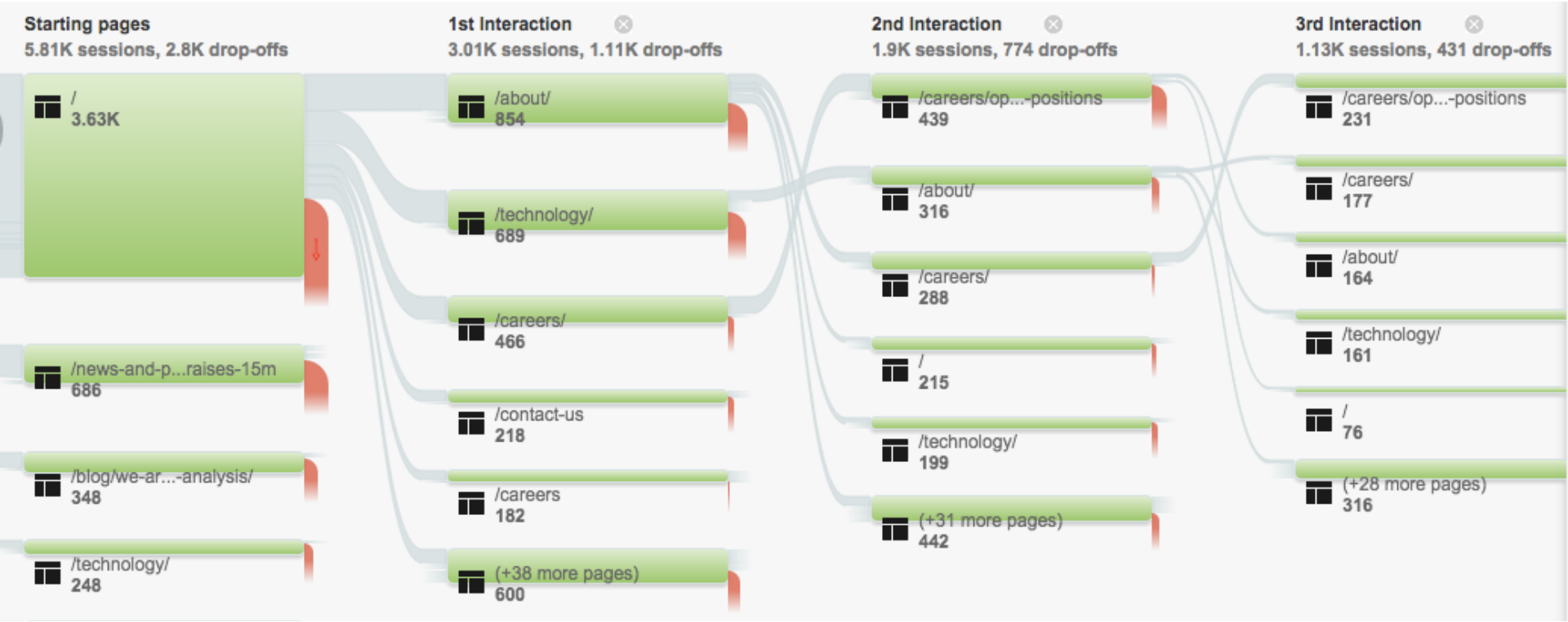
Dynamic flow charts



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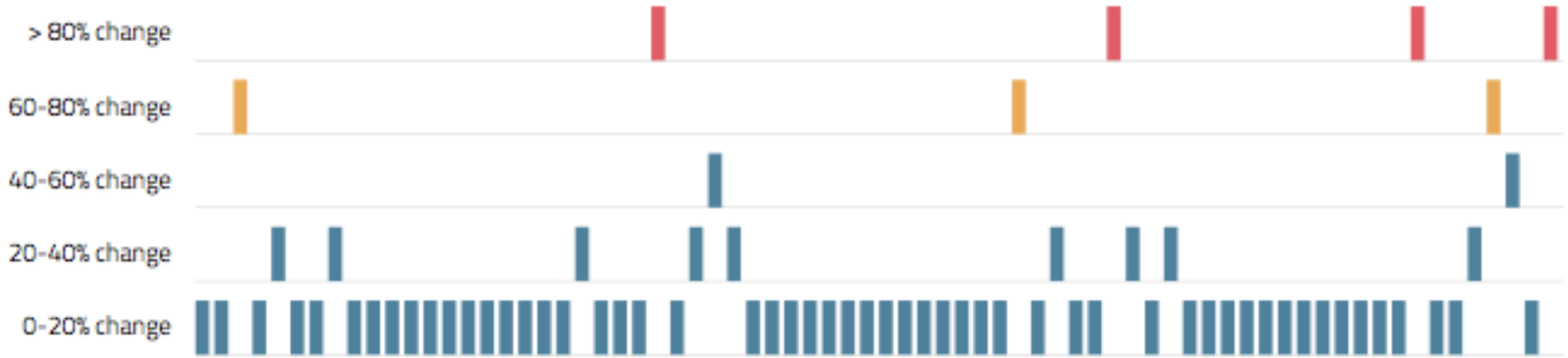
Swim lane bar charts



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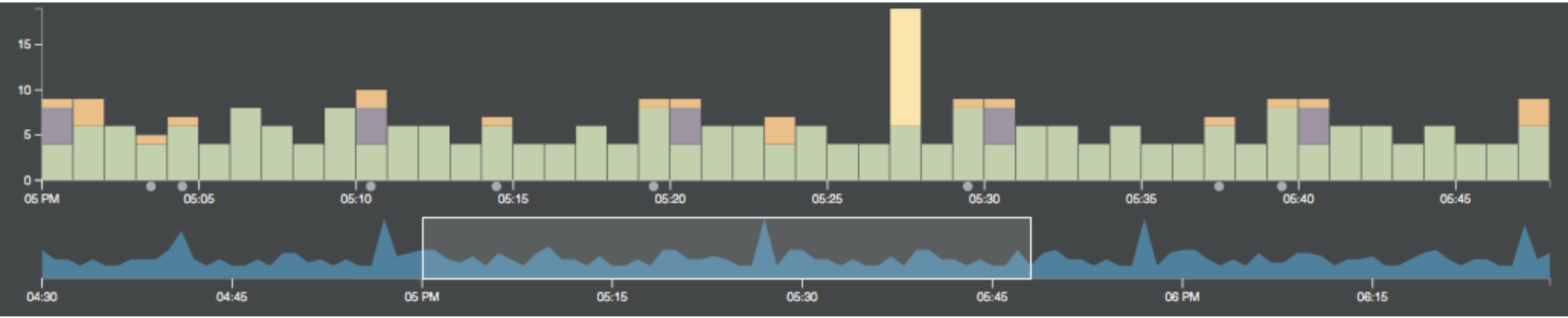
Stacked bar charts with annotations



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Machine Learning Techniques

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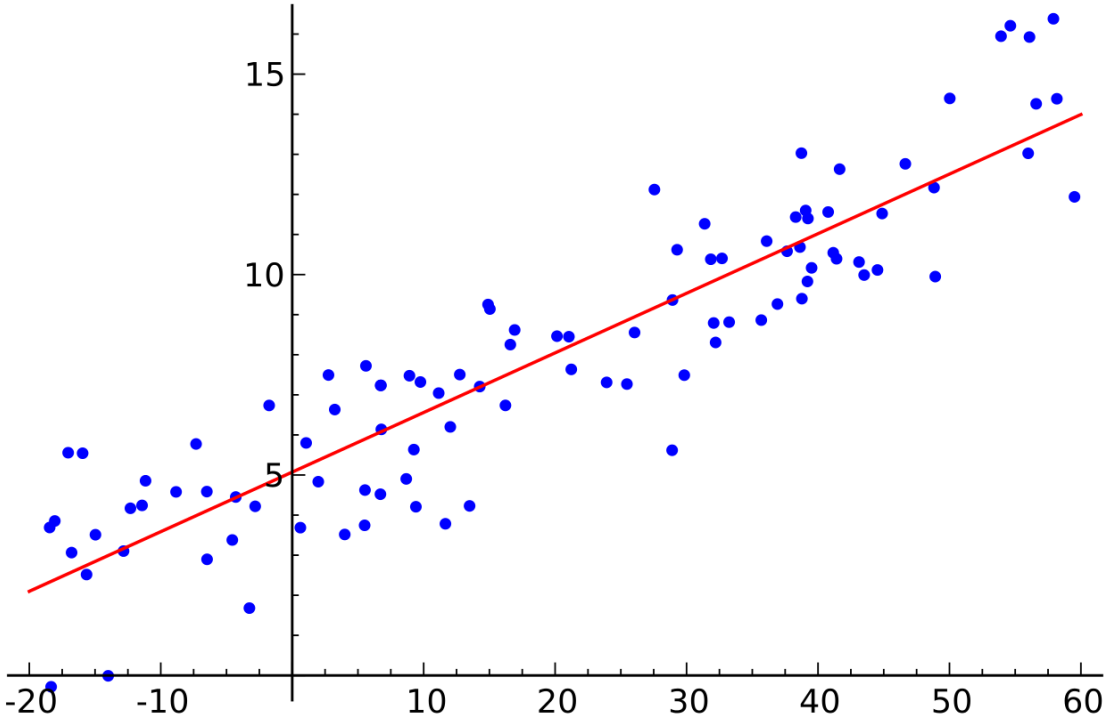
Linear Regression



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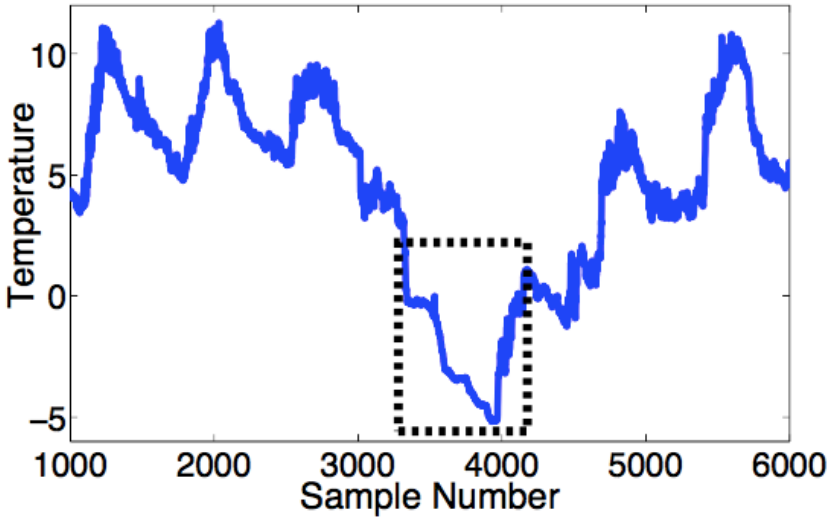
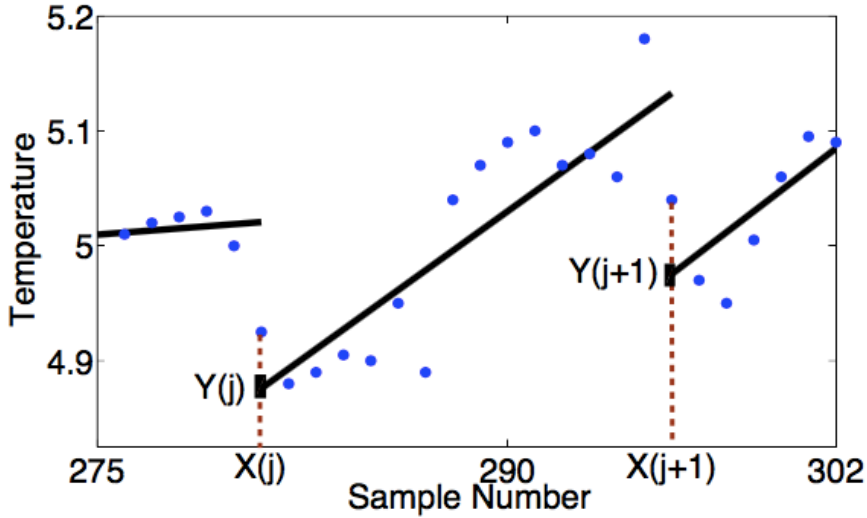
Piecewise Linear Regression



(a) Long duration anomaly



(b) Piecewise linear model for time series data

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Results

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From the Field

- Detect spikes in network service activity (possible abuse or attack)
- Visually highlight [anti-]correlated behaving systems
- Identify clusters (and changes) of systems that communicate
- Automatically component database (critical in elastic infrastructure)
- Correlate system behavior and changes (user X on system Y)

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- http://www.rocana.com/blog
- http://bit.ly/smedata-talk
- @otrajman and @rocanainc

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