



Drew Fustin data scientist



data science/business intelligence strategy

including toy reactive pricing model

organizational data needs [just spitballin']

- departmental KPI reporting
- marketing initiative ROI/lead gen monitoring
- customer hero staffing by predicted demand
- sales lead optimization and analysis
- central data warehouse creation
- department data marts and dashboards
- database storage infrastructure planning
- ETL implementation
- pricing optimization on demand
- customer map features like "select garages within 5 minutes"
- predicting parking demand spikes
- collecting and scraping event data
- auction-based recommendation rankings
- real-time parking traffic sensor data

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creating new
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filling the
data needs
of both

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creating new
data-driven
initiatives

long-term data strategy starts now

- creating new data-driven product adds an additional barrier-to-entry for competition
- new features attract customers – both drivers and garages
- optimization and predictive analytics provides instant revenue
- optimization also creates huge leverage in sales opportunities to handle a higher percentage of a garage's throughput
- consider: even intelligent garage's with excellent optimization techniques have only a fraction of the total market visibility that we do <-- exceptionally valuable in aggregate
- [pet thought: real-time data collection and IoT is the future]

long-term data strategy starts now

- distracting engineering team to work on data infrastructure needs becomes untenable/unnecessary
- data warehouses provide instant value to analysts and thus project/department owners
- warehousing and ETL is difficult, there are few experts to build it right from the start
- the cost of changing warehouse and ETL infrastructure increases *rapidly* as the number of organizational shareholders increases

personnel

- personal recommendation:
 - 1 lead data scientist
 - 1 lead data engineer
- tenable possibility:
 - 1 data lead
 - 1 junior data scientist/engineer
- tenable possibility:
 - 1 data lead
- long-term data organization:
 - 1 lead data scientist + small team
 - 1 lead data engineer
 - 1 business intelligence lead
 - either:
 - a) department-specific analysts
 - b) analytics consultancy with rotation

personnel

difficult to find single person
priorities spread too thin

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engineering is a full-time
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analysts w/ permanent
full-time dept. home

- pro: data knowledge
- pro: consistency
- con: burn-out
- con: non-tech mgmt.
- con: org ignorance



drew fusth

SpotHero



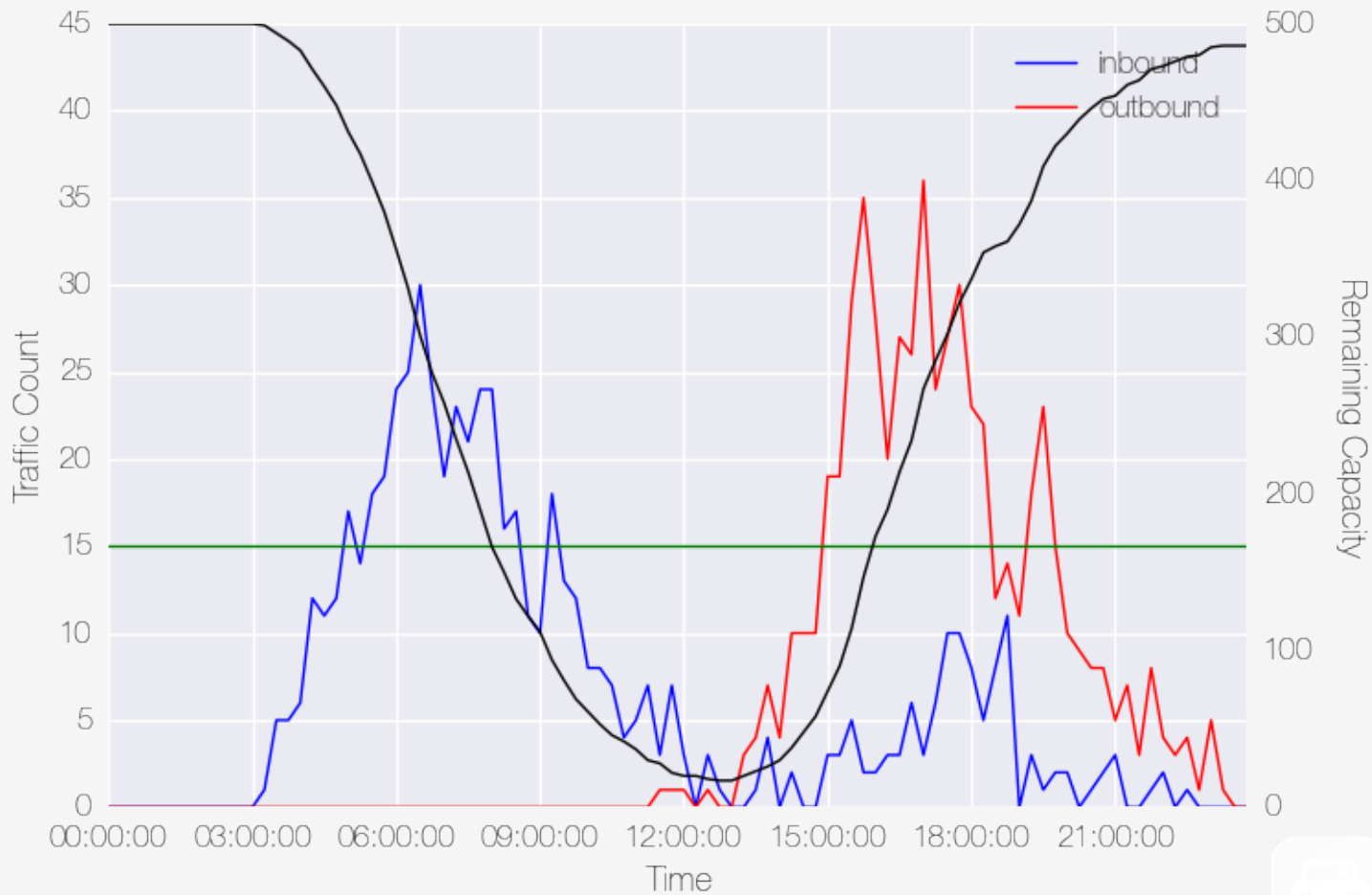
reactive pricing

reactive pricing

- similar to Uber's surge pricing, potentially only discounting
- unused parking spots are lost revenue, collecting even \$1 for them is better than not using them
- difficulty: have to be sure \$1 spots wouldn't be used otherwise

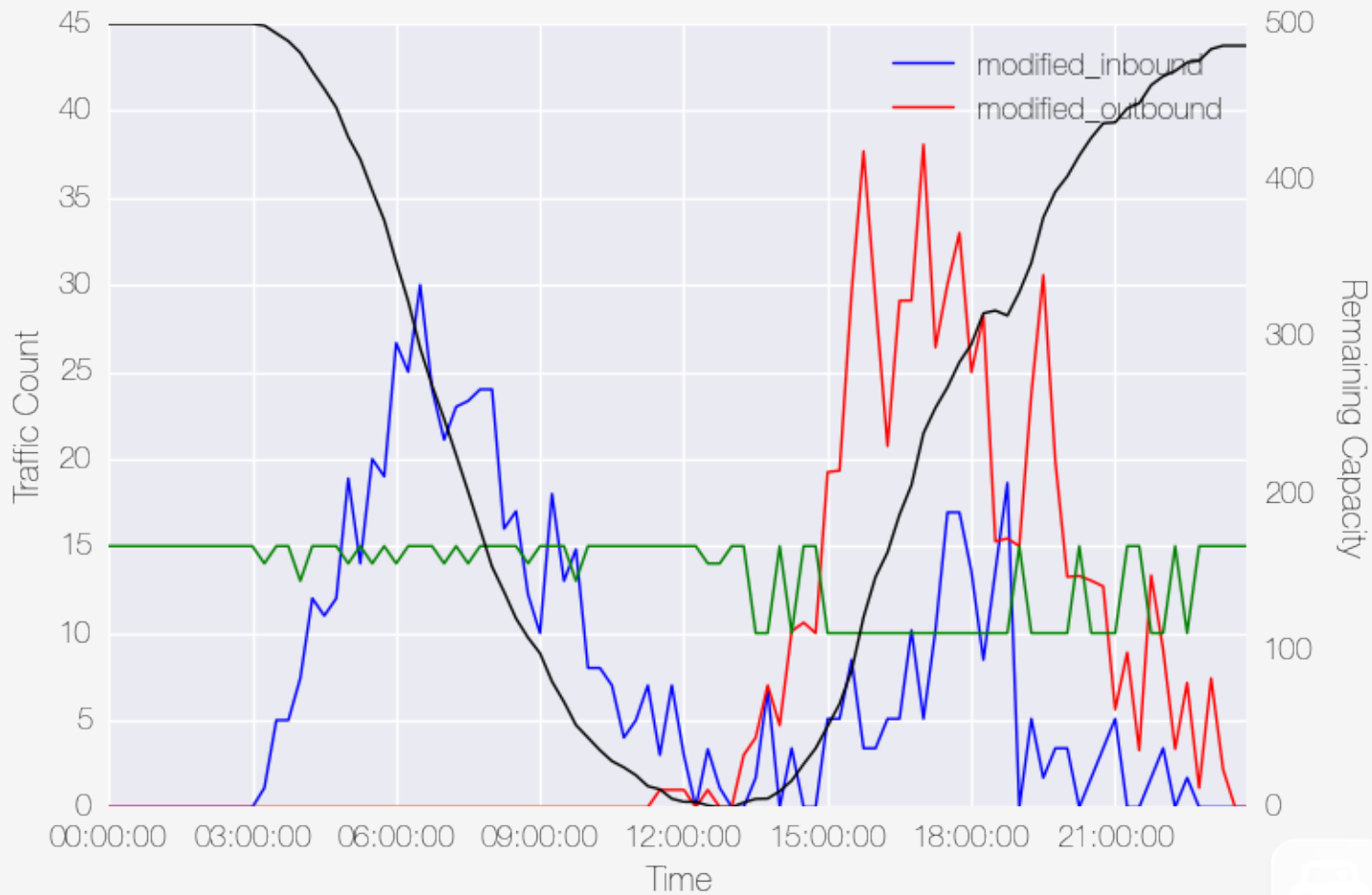
toy model [scenario 1]

- \$9,000 revenue



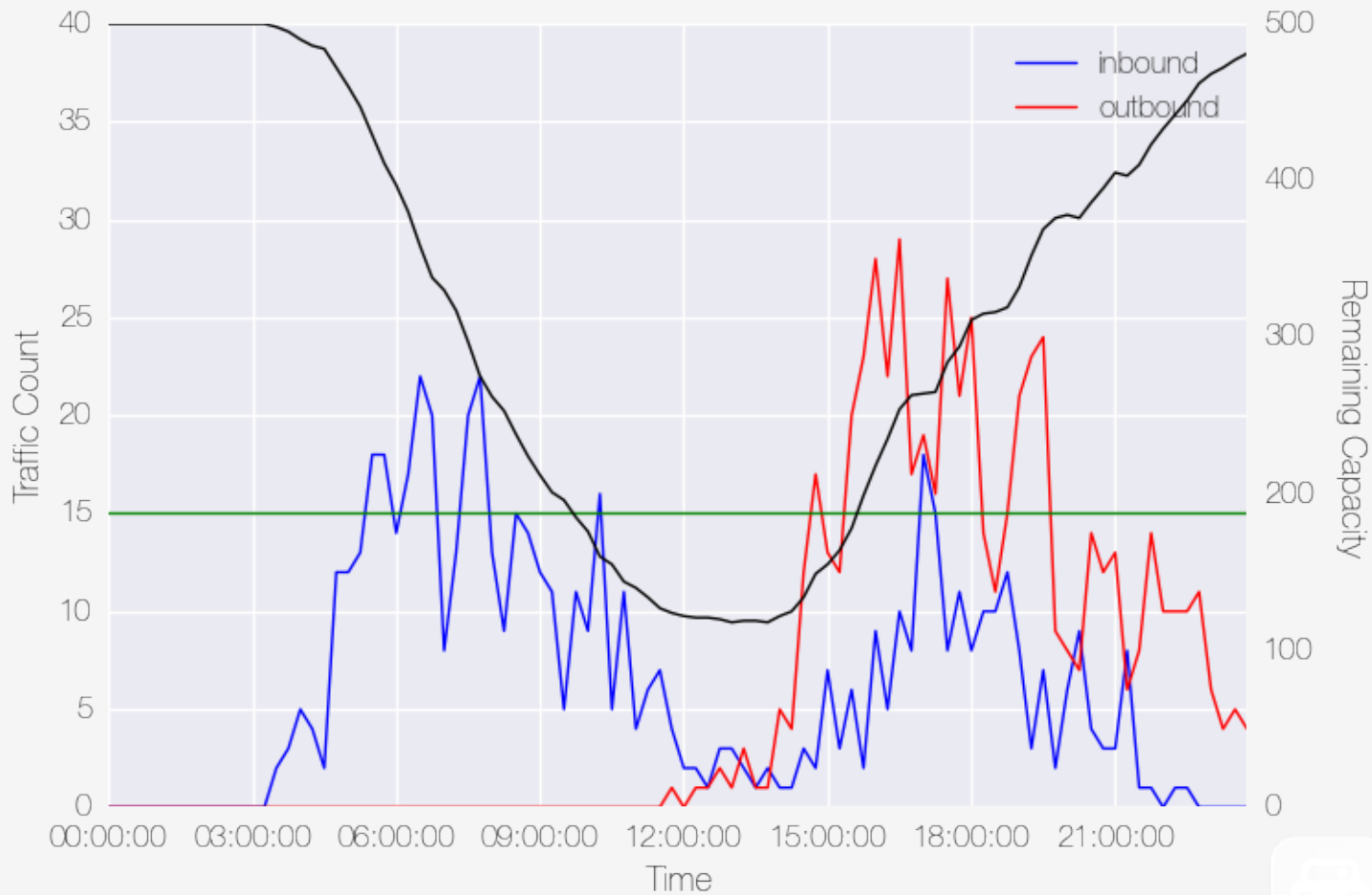
toy model [scenario 1]

- \$9,300 revenue [+1% revenue]



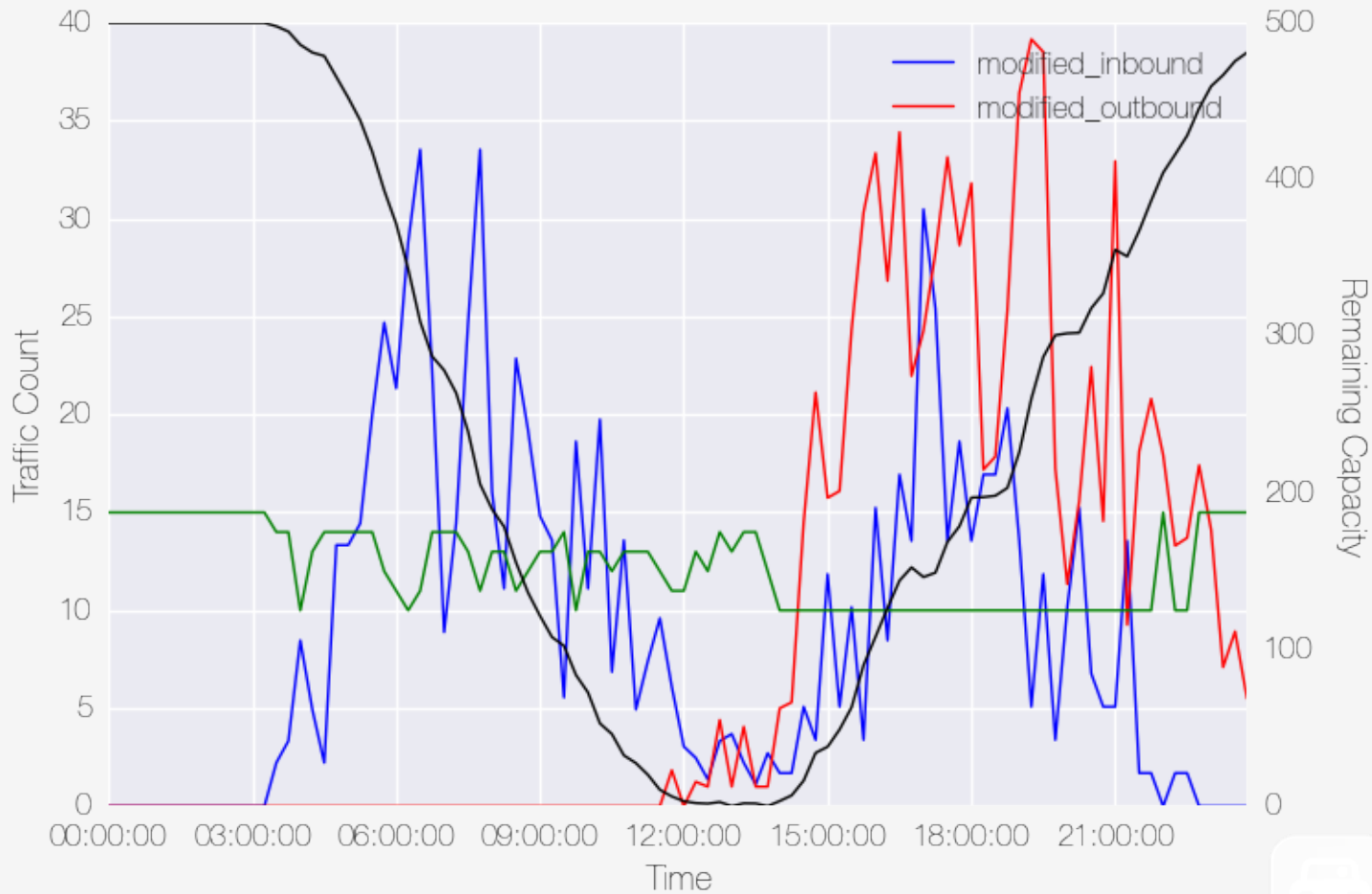
toy model [scenario 2]

- \$9,000 revenue



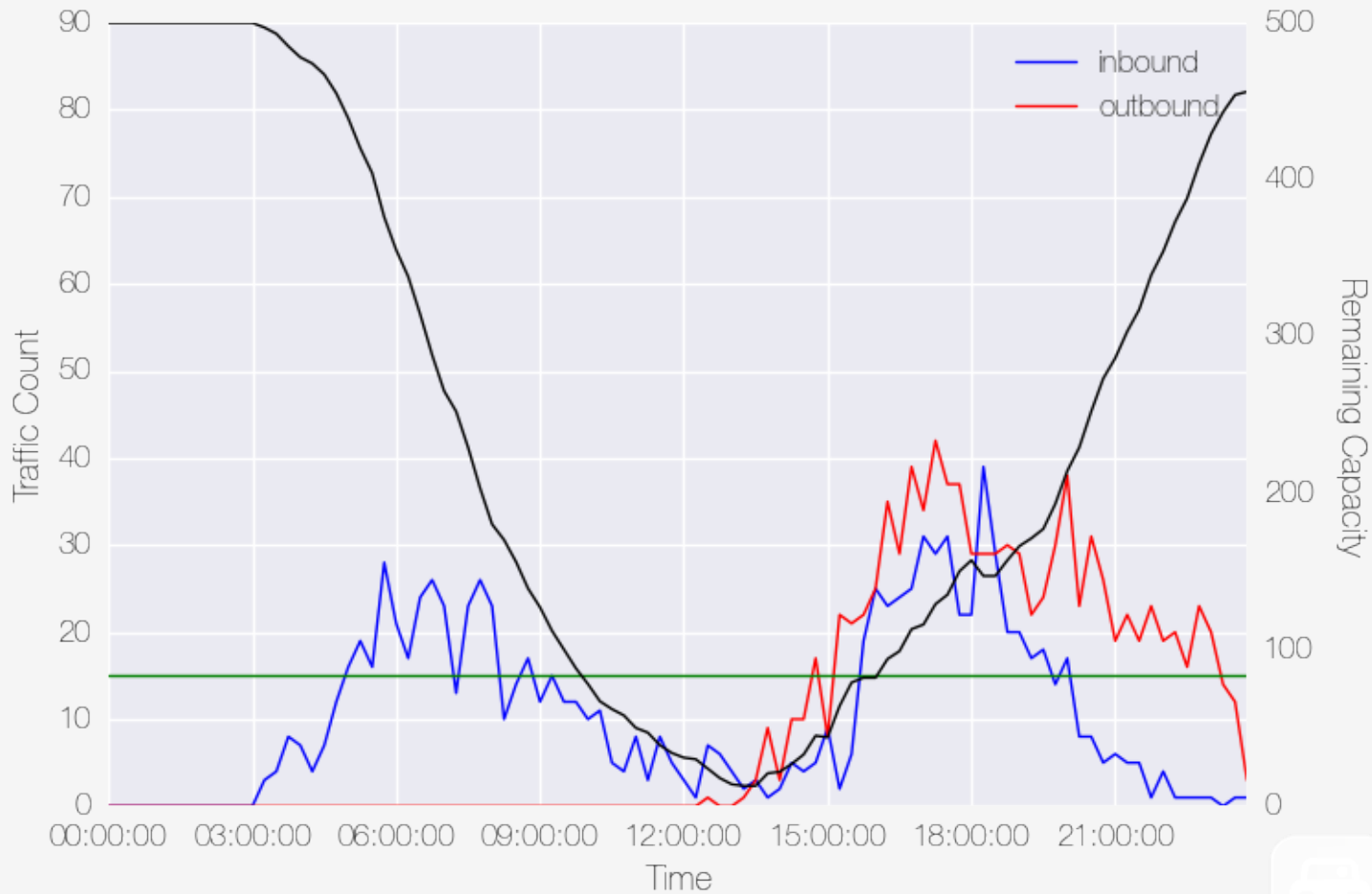
toy model [scenario 2]

- \$9,850 revenue [+9% revenue]



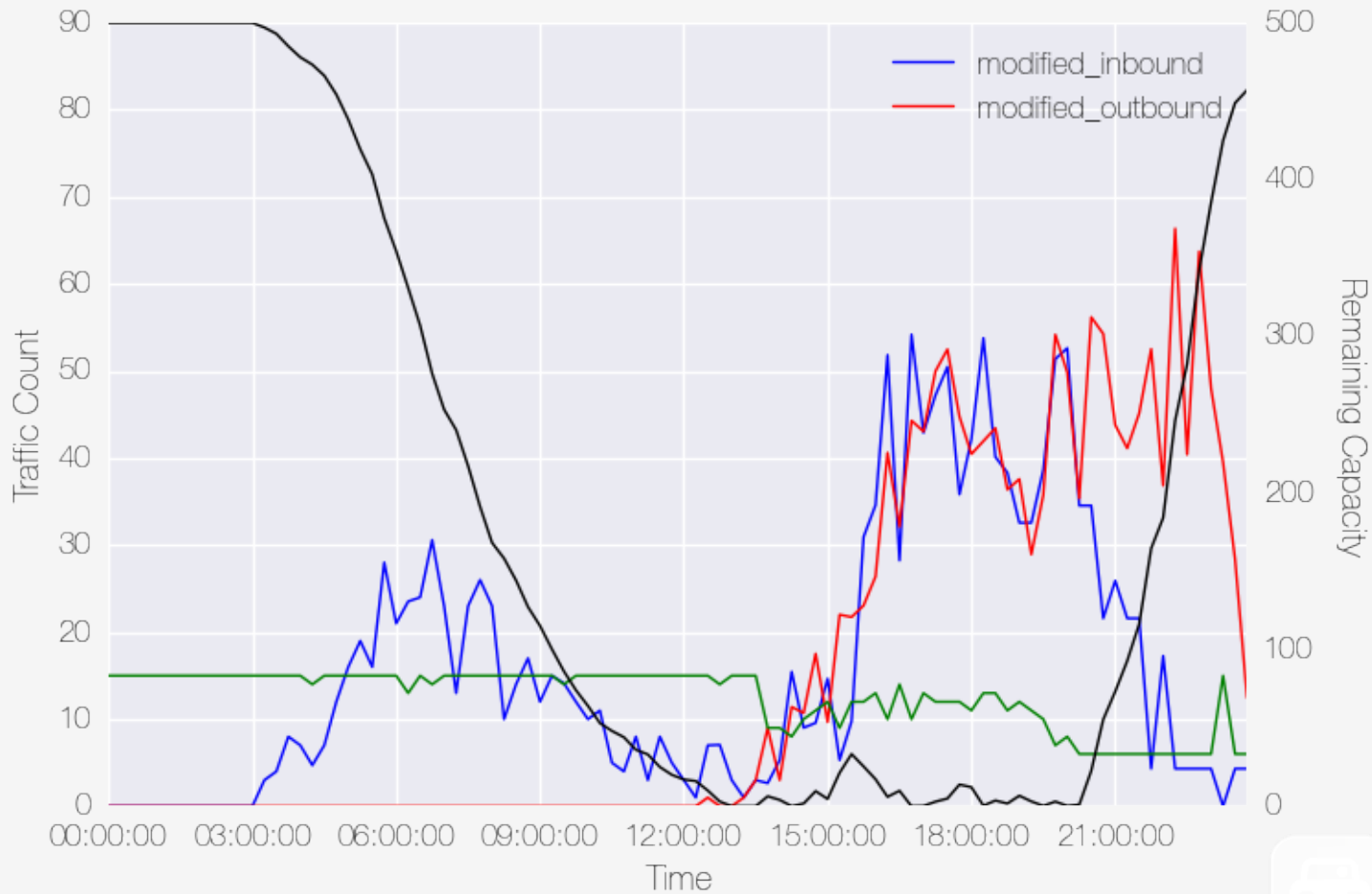
toy model [scenario 3]

- \$15,000 revenue



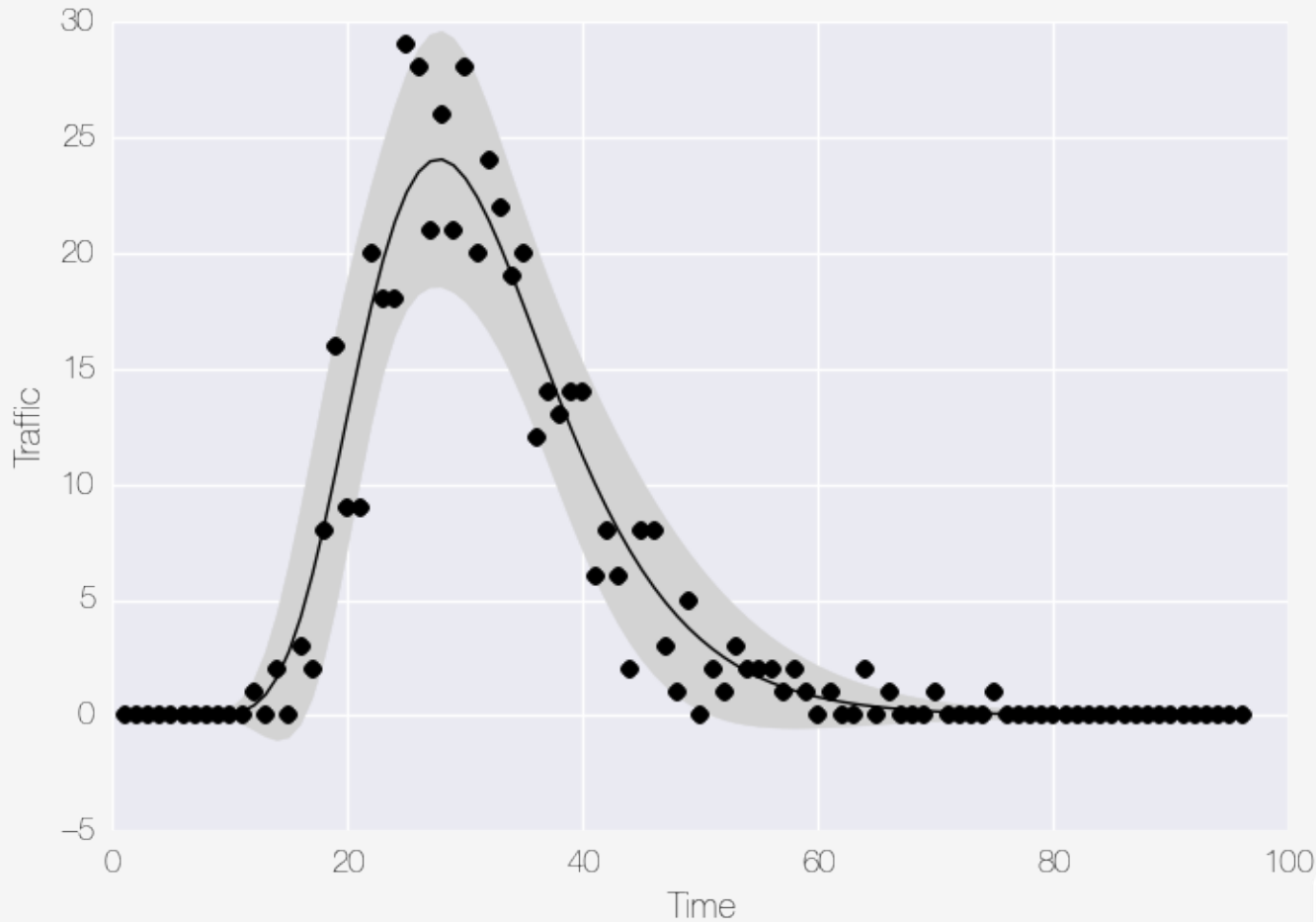
toy model [scenario 2]

- \$17,900 revenue [+19% revenue]



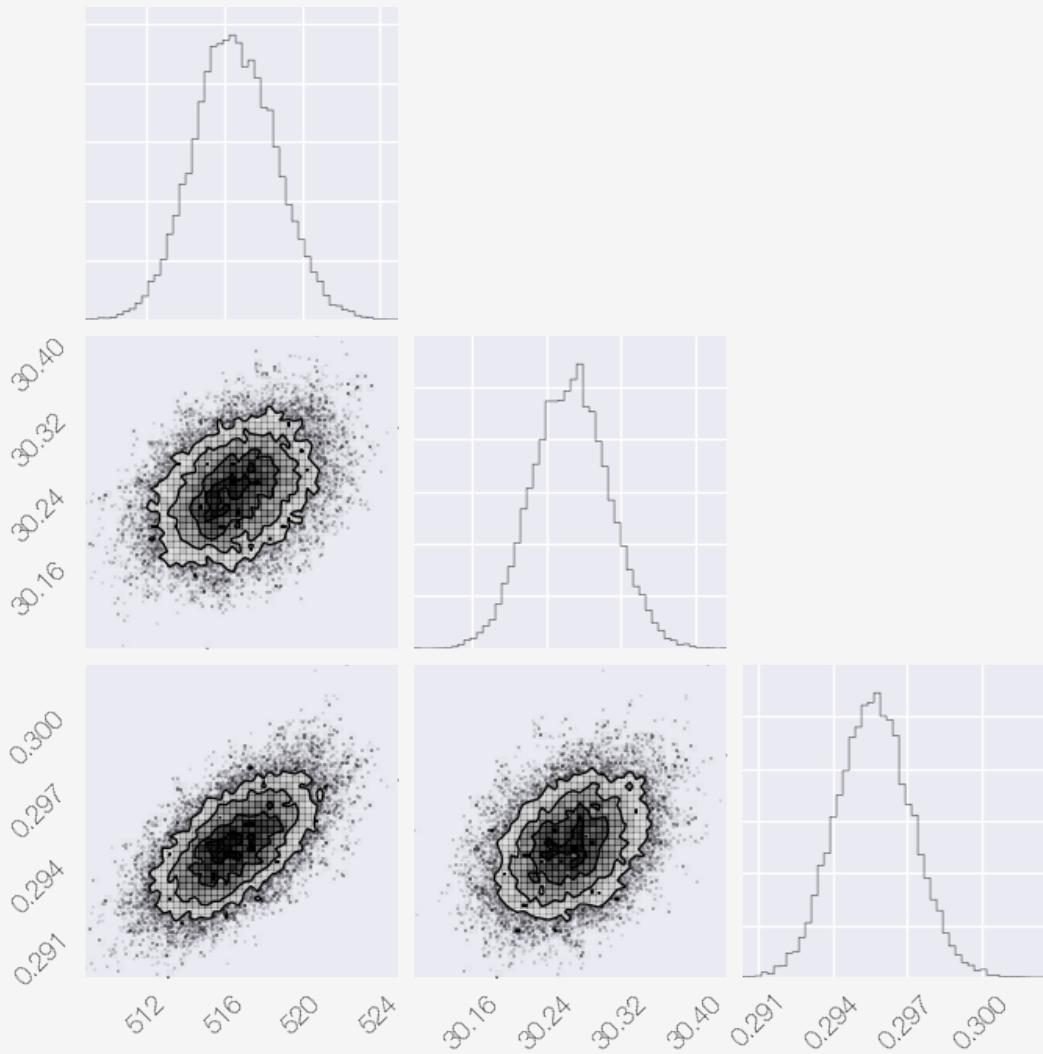
daily demand prediction

- curve fitting to find distribution parameters



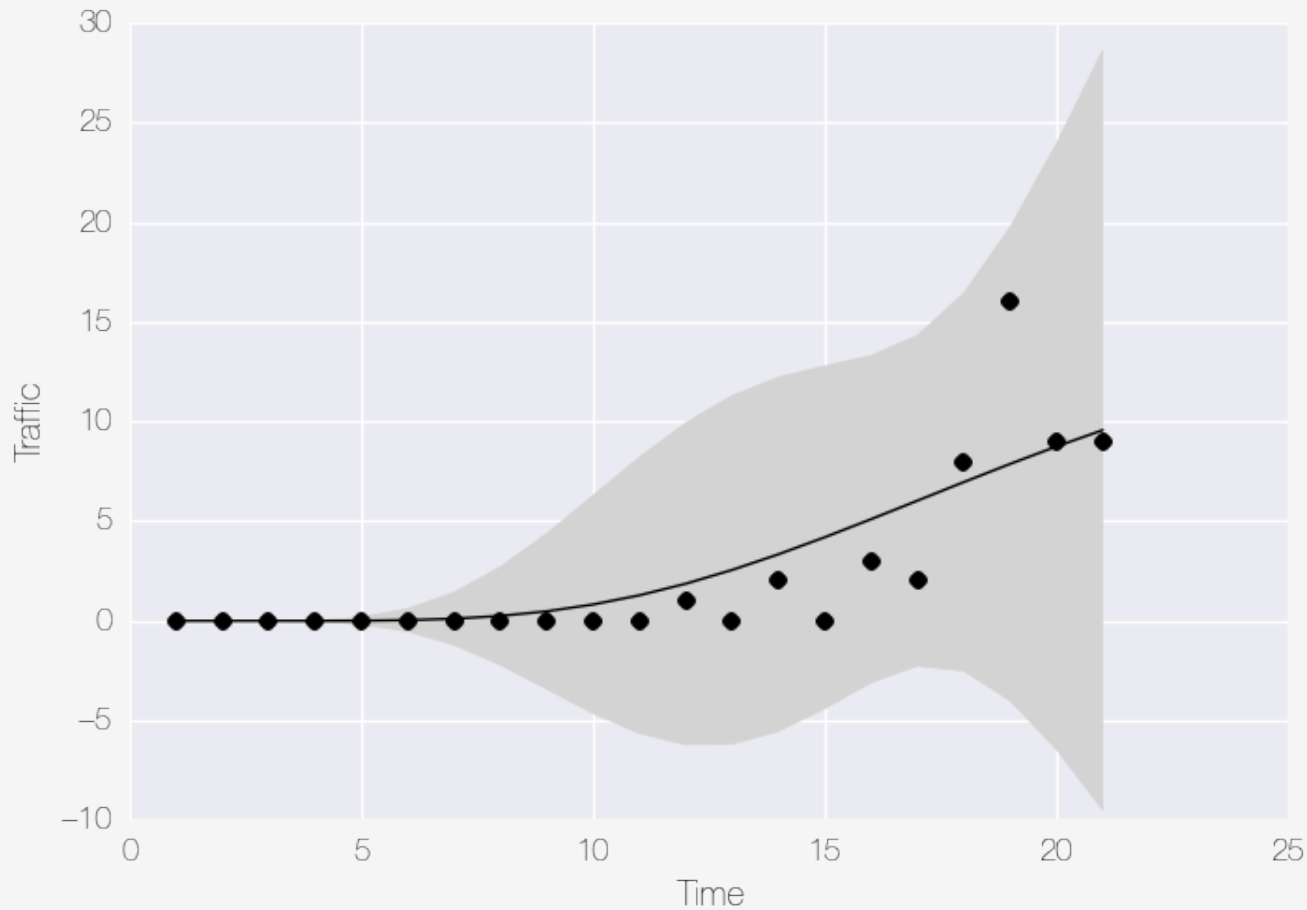
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daily demand prediction

- early daily numbers + Bayesian modeling = good guesses?



daily demand prediction

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