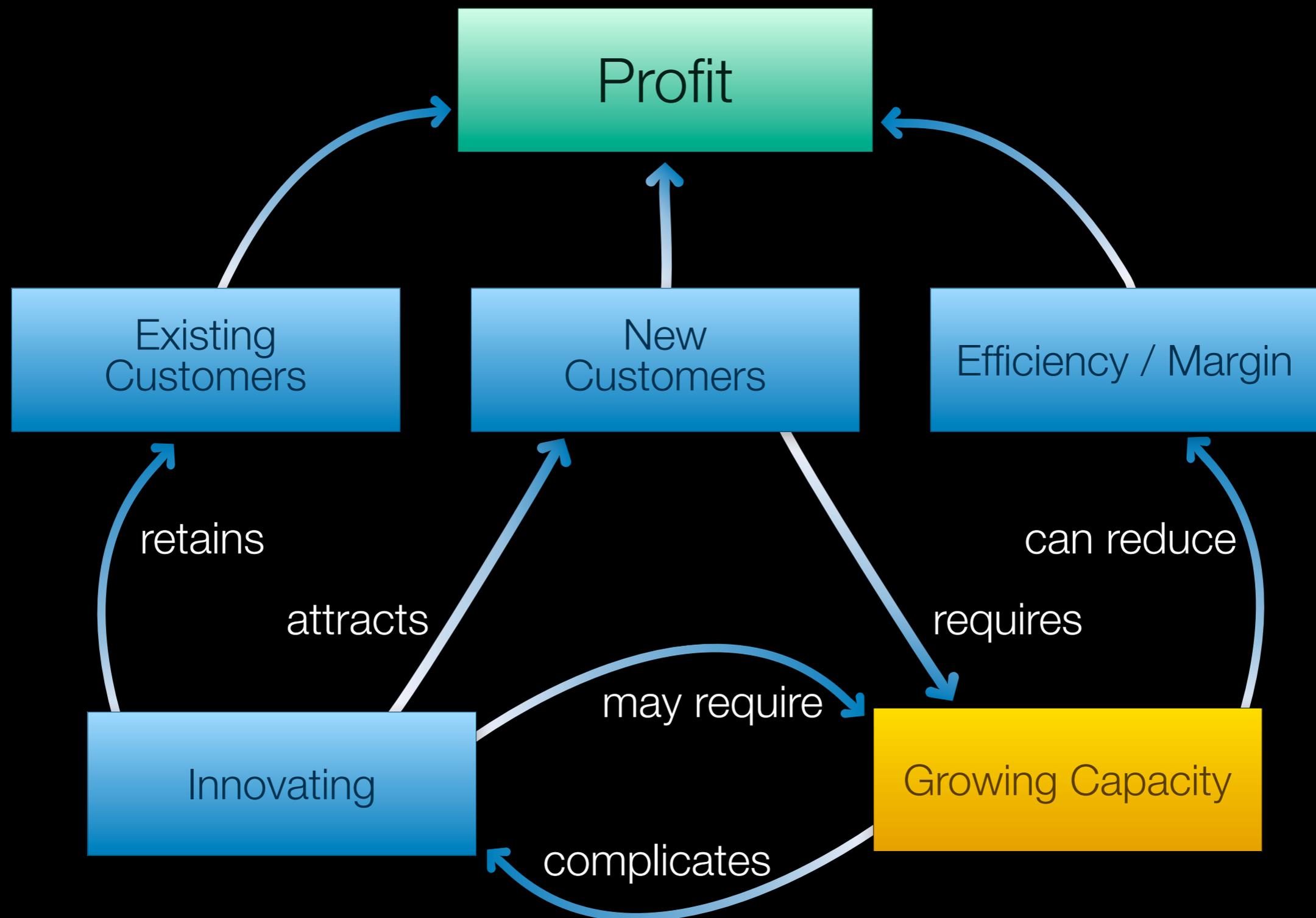


Planning for Scale

Patrick Foley, Microsoft
Drew Colthorp, Atomic Object

The Big Picture



Growth

- Dimensions
- Dependent or independent
- Anticipated shape of growth

Constraints

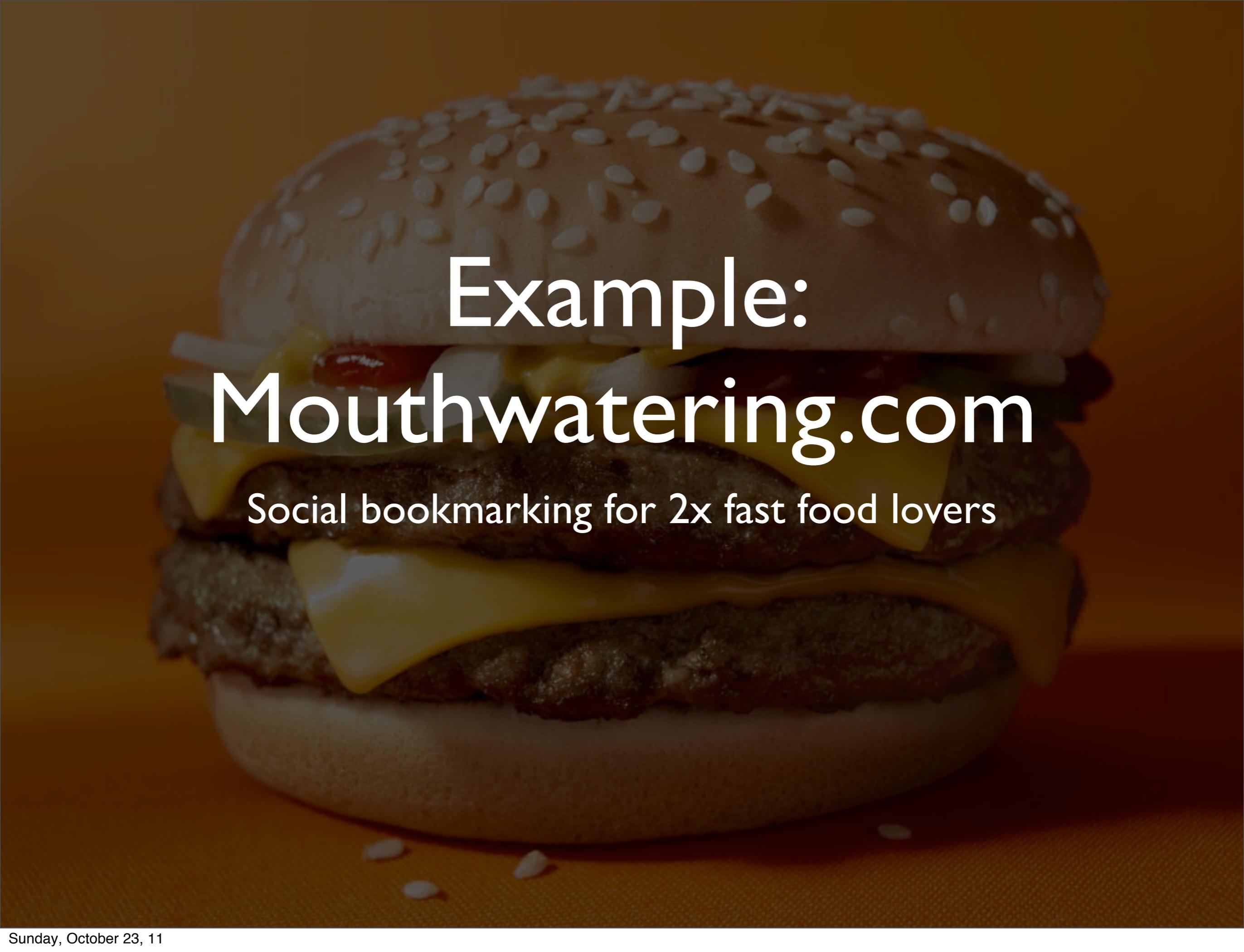
- \$\$\$
- People
- Physical products
- Red tape

Constraints

- \$\$\$
- People
- Physical products
- Red tape
- Compute capacity
- Storage
- Locality/latency

Planning for Scale

- Balance business and technical concerns
- Make informed decisions about trade-offs
- Predict and constrain



Example: Mouthwatering.com

Social bookmarking for 2x fast food lovers

Scaling

- Optimization
 - go faster
 - diminishing returns
- Scale up
 - buy a bigger server
 - easiest
 - wasted capacity
 - superlinear cost curve
 - wasted capital
- Scale out
 - buy more servers
 - complicates infrastructure
 - special purpose software

To the Cloud!

- Metered capacity
- On demand
- Operational instead of capital expense

Data

- Data “shape”
 - Graph
 - Relational
 - Document
 - Object
 - Key-value/semistructured
- Access patterns
- Read-heavy versus write-heavy
- Transactional or not
- Paths to data – full text search, Geospatial
- Fundamentally complicating
 - CAP
 -

PaaS

- High level
- Elastic tools
- Mixed offerings

Key trade-offs

- \$\$\$
- Ability to innovate versus capacity for growth
- Cap Ex versus Op Ex
- Specialized tools versus vendor/platform lock-in

Scenarios

- Growth
 - What are the drivers? (users, data)
 - What does the growth curve look like? (linear, exponential, bursts)
- What are the obvious constraints?
- Is cloud appropriate?
- Important characteristics of the system

Acme Employee Directory

- Existing application, currently on-premise
- Moving to SaaS model
- Single-tenant, Multiple tenant, or hybrid?
 - Technical decision – rearchitect database.
 - Business decision – database per customer

Which Pirate Are You?

- Facebook personality test
- Tiny budget
- Hopefully viral - ad supported

Retail Sales Tracking

- New SaaS product
- Targeted at national consumer product manufacturers
- BI system helps identify business trends
- Aggregates and anonymizes sales data across all manufacturers using the system

Questions and Answers Site

- To compete with Stack Exchange

Medical Records

- Choice of SaaS or on-premise
- Well funded customers
- Lots of binary image data

Credits

- 2x 1/4lber w/cheese - mcmissouri.com
- Double down - wikipedia.org
- XXL Chalupa - Taco Bell