



# L.L.Bean

## L.L.Bean: Modernizing Customer Experience Through Omnichannel Architecture

---

Randy Dyer, Lead Architect, Customer Technologies, L.L.Bean

Wednesday, September 19, 2018



**Randy Dyer,**  
Enterprise Architect,  
L.L.Bean

# Agenda

Evolution of L.L.Bean

Case for Change

Vision for the Future

Realizing the Vision

Lessons Learned

The Journey Forward

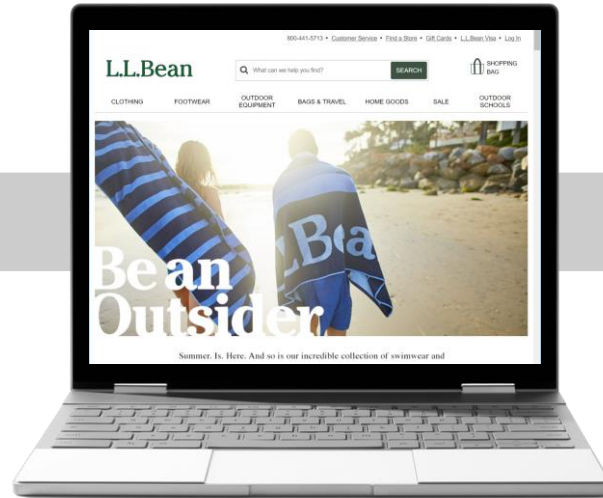


**Be an  
Outsider**

**Made For The  
Shared Joy Of  
The Outdoors**



# Evolution of L.L.Bean



# Industry trends

**73%**

consumers use multiple channels when shopping

**87%**

customers think brands need to put more effort into providing a more consistent experience

**30%**

higher lifetime value for omnichannel shoppers than those who shop using only one channel

# Where we started



**Siloed applications – difficult to provide common experience**



**Monolithic, tightly-coupled legacy Architecture**



**Costly and challenging to change**



**On-premises IT Infrastructure**

# New omnichannel architecture



**Supports consistent customer experiences**



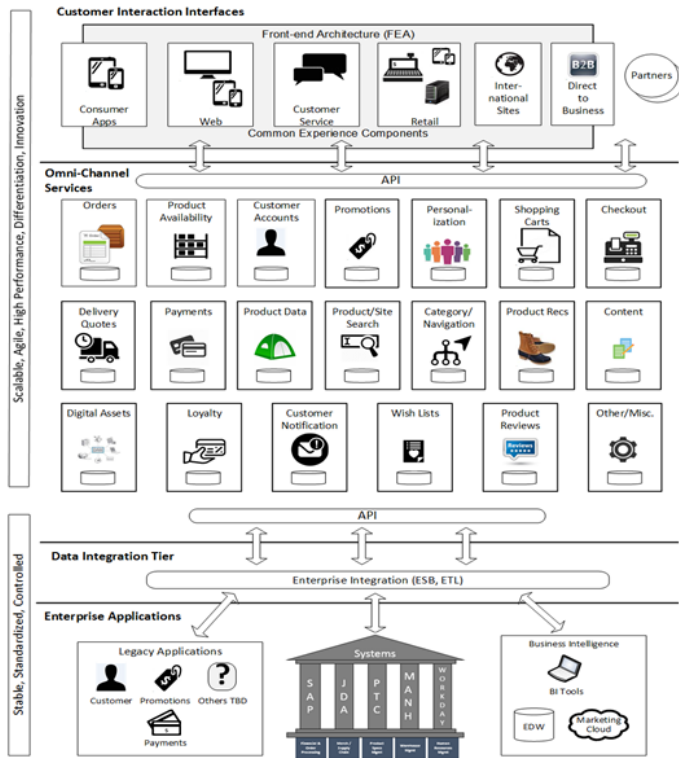
**Improved agility, speed**



**Modern architecture**



# Our vision one-pager



## Customer Interaction Interfaces

1. Customer facing applications integrated through shared services
2. Consistent data sources and business rules across all front end systems

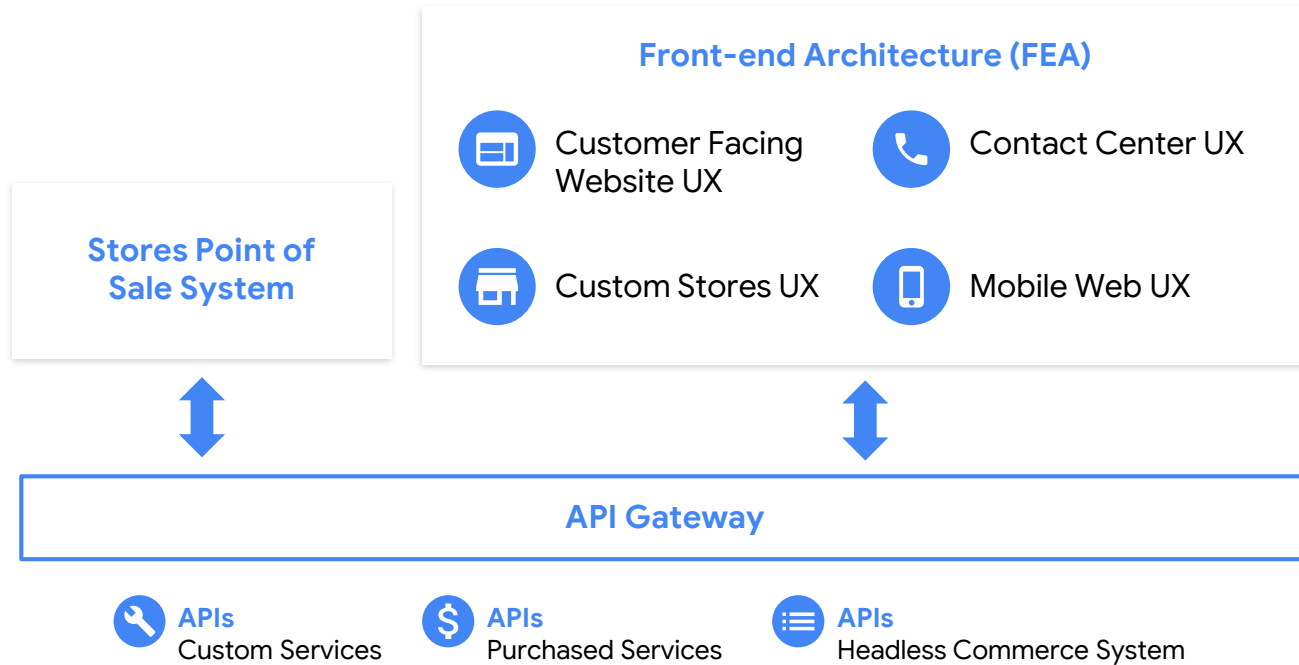
## Improved agility, speed

1. Designed to optimize development life cycle, speed to market
2. Allows rapid prototyping, quick change cycles, Continuous Delivery
3. Optimized front end data tier fed from backend tier data sources

## Modern architecture

1. Best breed vendor or open-source solutions leveraged where appropriate
2. Cloud-based - designed for scale, adaptability, agility
3. Durable front-ends can operate independently of backend tier

# Future state architecture diagram (simplified)



# Why journey with Google Cloud?

Managed Kubernetes (GKE)

Open Source commitment

Security architecture

Dynamic scaling for seasonal volumes

Innovation and improved time to market

Key business relationship with digital marketing

Flexible pricing model

# Our GCP implementation



Implemented Google's  
Cloud native open  
source system



Microservices  
architecture



Devops CI/CD



# Key services and components we're using

## GCP Services

- Compute Engine
- Kubernetes Engine
- Load Balancers
- Pub/Sub
- Apigee Edge
- Cloud Spanner
- Stackdriver Logging
- Cloud Storage
- Cloud Endpoints

## Other Components

- Github Enterprise
- Jenkins
- Nexus Repository
- Terraform
- MongoDB
- Splunk
- Prometheus/Grafana
- Let's Encrypt
- Twistlock

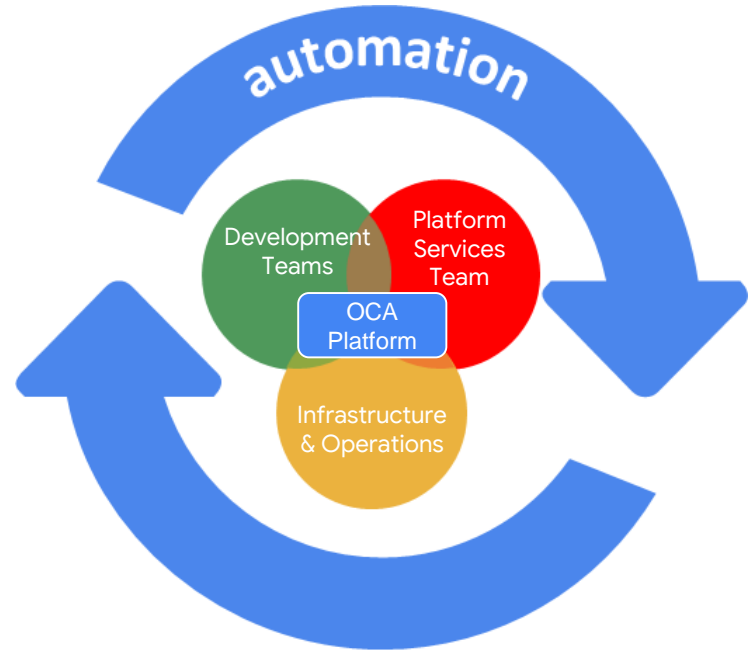
# Platform Services

## Team Mission

- Maintain the systems and processes necessary for agile and continuous software delivery
- Enable the development teams to embrace the DevOps culture and practice

## Practice Areas - “Automate Everything”

- **Infrastructure** – create systems and configurations
- **Continuous Delivery** – develop initial pipelines that build, test, and deploy applications fast, often, & automated
- **Site Reliability Engineering** – enable monitoring, scaling, security, & system stability



# Front-end architecture (FEA)



Customer facing applications (desktop, mobile, tablets)



Replaces current JSP/Javascript web UI on llbean.com



Utilizes React and other open source components



Embraces Atomic Design principles for loose coupling of components



Implements Responsive Web Design and Accessibility



Improves performance, scalability, speed to market for new features



Supports ongoing experience optimization of customer experiences

# Case study of the value of the platform



New version of  
llbean.com using  
FEA was released



Excessive memory  
usage alert



Kubernetes  
auto-restarted  
pods



Quick problem  
determination  
and remediation



# Key learnings

Establish a vision for  
the future



It's a journey,  
not a project



Embrace DevOps



Establish a Platform  
Services team



Engage security  
at the outset



# Continuing the journey



Transition completely to a  
microservices architecture  
deployment



Build out an event based  
integration platform



Implement an omnichannel  
data services platform

**Be an  
Outsider**

**llbean.com**  
**#BeanOutsider**



Thank you.

