Lessons from Transforming the Enterprise to an API Platform

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Introduction

• Executive API Consultant
• API strategy and execution
• Across multiple verticals:
  – Commercial Insurance
  – Healthcare
  – Hospitality
  – Finance and Banking
  – Travel
  – Airline
The Enterprise API Journey
APIs are the ultimate “do over” for enterprise IT
The Emerging Enterprise API Platform

- Offers API
- Rewards API
- Accounts API
- Inventory API
- Orders API
- Identity API

Partners

Internal Developers

Third-party Approved Apps

Public App Developers

Customers

LaunchAny
Lesson #1:
Develop an API Strategy
to support the platform
Understand the “Why” of Your API Strategy

1. Accelerate mobile strategy
2. Adapt to changing customer relationships
3. Speed partner integrations
4. Foster technical and business innovation
5. Unsilou channels through easier data sharing
Understand the “How”: API Design First Process

1. Identify Capabilities
2. Model API Capabilities
3. Design API
4. Mock API Design
5. API Feedback From Stakeholders
6a. Decompose to Microservices
6b. Test/QA API
6c. Finalize Docs, Tutorials, Examples
7. Release API to Stage, Prod
8a. Consumer Onboards
8b. Consumer Integrates
Measure the Results of Your API Strategy

• Do we have a consistent customer experience across all channels?
  – An API-centric approach ensures consistency across all channels, while each channel applies API capabilities in the manner best suited for the channel

• Are we encouraging co-ownership between IT and business?
  – Business and IT must work together to deliver a great platform

• Are we achieving expected agility (speed and safety in harmony)?
  – Your goal is to move safely at a higher rate of speed – properly aligned API strategy is the enabler
Alexa, ask Capital One...

Now you can use the Capital One skill on the Amazon Echo to hear how much money you have, make credit card payments, and stay on top of recent charges. You’ll have direct access to your accounts – just by asking Alexa.

Enable The Skill

What Can You Do With the Capital One Skill?
You're really good at texting.

Which means you can be really good with money using EnoSM, the new intelligent assistant from Capital One®

GET STARTED

4.7/5 Average Customer Rating

⭐⭐⭐⭐⭐
Let yourself in with
DIGITAL KEY
Lesson #2:
Implement Federated API Governance
to increase platform quality
SOA Governance: Suppressing Innovation Since 2004
Choosing Between Centralized and Federated Governance

• Centralized
  – Creates strict consistency across APIs, go/no-go decision for every API created
  – Reduced throughput, often doesn’t scale

• Federated / Hub-and-Spoke
  – Centralized group steward the standards, produce shared resources
  – Lends more context to the problem than a centralized group
  – Better fit for larger organizations or those with distributed workforce

• Federated / Independent
  – Centralized group steward a framework for standards
  – Teams embrace and extend as needed
API Portfolio Management is Critical

- Define a clear lifecycle for APIs to go from idea to production
- Differentiate APIs between private, partner, and public
- Bundle APIs to restrict access, enforce entitlements
- Establish metrics that define quality APIs
Lesson #3: Modernize Architecture and Delivery

to optimize for agility
Exposé Business and Tech Capabilities Through APIs

- Manage project from start to completion → POST /projects
- Add collaborators to a project → POST /projects/{projectId}/members
- Subdivide a project into issues → POST /issues
- Mark issue complete → POST /issues/{issueId}/completed
- View incomplete issues → GET /issues?status=incomplete
- View active projects → GET /projects?status=active
Drive Speed and Agility with Microservices + Automation

- Web + Mobile App
- Alexa Voice Skill
- Slack Chatbot

API Product

Team A

- Microservice
- Messaging (e.g. Kafka)

Team B

- Microservice
- Messaging (e.g. Kafka)
Create Opportunity with Event-Driven APIs
Operationalize Data with Streaming

Move Your Platform Beyond Request-Response APIs

- Events and streaming extend the platform beyond its original design
- Discovery via channel definitions using AsyncAPI (asyncapi.com)
- Function-as-a-Service (FaaS) will be the glue
4. Increase API Platform Adoption
to grow the platform
How We Think of API Consumption
A great API program assists API consumers through all phases of their consumption journey. This results in a healthy, growing platform instead of a stagnating program.

### The Reality of API Consumption

<table>
<thead>
<tr>
<th>Consumption Phase</th>
<th>Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discovery</td>
<td>Identify API capabilities</td>
</tr>
<tr>
<td>Mapping</td>
<td>Map solution to Platform API capabilities using reference documentation</td>
</tr>
<tr>
<td>Exploration</td>
<td>Prototype consumption (“Try-it-out”)</td>
</tr>
<tr>
<td>Onboarding</td>
<td>App registration for API access to testing and staging</td>
</tr>
<tr>
<td>Integration</td>
<td>Developers consume the API within the solution via code</td>
</tr>
<tr>
<td>Certification</td>
<td>Obtain final approval for production API access</td>
</tr>
<tr>
<td>Usage Monitoring</td>
<td>Production usage monitoring and throttling</td>
</tr>
<tr>
<td>Platform Improvement</td>
<td>Request platform API enhancements to meet the needs of the solution</td>
</tr>
<tr>
<td>Platform Updates</td>
<td>Build platform awareness; update notifications for enhancements; sunsetting</td>
</tr>
<tr>
<td>Level 1: Adhoc</td>
<td>Limited or no adoption, no guidance on capabilities provided or how to get started</td>
</tr>
<tr>
<td>Level 2: Dev Portal</td>
<td>Capabilities and API docs offered to teams for reference and shared understanding</td>
</tr>
<tr>
<td>Level 3: Enablement</td>
<td>Apps onboarding and consuming with guidance</td>
</tr>
<tr>
<td>Level 4: Self-Onboarding</td>
<td>Apps are able to onboard with minimal or no guidance</td>
</tr>
<tr>
<td>Level 5: Community</td>
<td>API platform knowledge shared and coached without council guidance</td>
</tr>
</tbody>
</table>
How to use this template

Replace all of the [prompts in brackets] with content that's specific to your API. When you've replaced all the bracketed prompts, you'll have the essentials documented sufficiently to help people use your API. If you want to work from a checklist, see the MVD checklist.

If something in this template doesn't make sense for your API, delete it! And likewise, add any sections you need based on your API's particulars. We hope our suggestions in this template will spark more ideas about documenting features of your API to help users consume it.

The template is written in Markdown, except this page, which is written in HTML. Some options for publishing are listed on the Publishing options page.

Update and expand

If you're interested in ideas for moving beyond basic API documentation, check out [this article](http://bit.ly/api-mvd) [link to API doc checklist article].

Don't forget to replace the text on this page with information about your API! It's the 'index.html' file.
5. Define Platform Processes

to accelerate and sustain the platform
• APIs, streams, and events treated as long-lived products
• Product owners listen to stakeholders to drive the API roadmap
• Objectives and Key Results (OKRs) and KPIs drive improvements
• Without a product-driven approach, APIs become stale and anemic, resulting in frustrated customers and developers
• Single-most challenging shift for the enterprise (but necessary)
Operationalizing the Platform Involves Everyone

- **InfoSec**
  - Review API designs, identify risks, authority to approve/decline apps consuming sensitive endpoints

- **Platform**
  - Product ownership, roadmapping, marketing/evangelism, drive onboarding consumers, coach teams new to consuming the platform, education (self-serve and workshops, hackathons)

- **Infrastructure/DevOps**
  - Ensure network, server, container platforms, necessary resources (e.g. message brokers, kafka, etc) are available and can be installed for a new project/team as required

- **Engineering**
  - Coach teams on common practices, patterns, delivery; onboard new projects that (most likely) consume the platform

- **Program Management Office**
  - Assist in the overall process of the platform and API initiatives, implement change management
Apply Cross-Functional API Training

Day 1
- Understanding APIs
- Principles of Modern Web APIs
- Thinking in Resources
- What Makes a Great API?
- Modeling APIs
- From Modeling to API Design
- Hands-on REST: Consuming APIs
- Patterns for Third-party API Integration
- API Documentation and Testing (half-day)
  - Using OpenAPI (aka Swagger) to Document Your API
  - Designing an Effective Developer Portal
  - API Testing Strategies
  - Introduction to Microservices
The API Platform Journey

1. Develop an API strategy to support the platform
2. Implement federated API governance to increase platform quality
3. Modernize architecture and delivery processes to optimize for agility
4. Increase API onboarding and adoption to grow the platform
5. Define platform processes to accelerate and sustain the platform
The Journey Toward an Enterprise API Platform

Offers API
- Avail Offers Svc
- Redeem Svc
- Check Inv Svc
- Inv Low Stream
- Redeem Stream
- Create Offer Svc
- Order History Svc
- Order Proc Stream
- New Acct Stream
- Profile Svc
- Order Svc
- Inv Svc
- Register Svc
- Perms Svc
- Friends n Fam Svc
- Avail Offers Svc

Rewards API
- Redeem Svc
- Check Inv Svc
- Ship Receive Svc
- Inv Low Stream
- Redemption Stream
- Create Offer Svc
- Order History Svc
- Order Proc Stream
- New Acct Stream
- Profile Svc
- Perms Svc
- Friends n Fam Svc
- Register Svc

Accounts API
- Redeem Svc
- Check Inv Svc
- Ship Receive Svc
- Inv Low Stream
- Redemption Stream
- Create Offer Svc
- Order History Svc
- Order Proc Stream
- New Acct Stream
- Profile Svc
- Perms Svc
- Friends n Fam Svc
- Register Svc

Inventory API
- Redeem Svc
- Check Inv Svc
- Ship Receive Svc
- Inv Low Stream
- Redemption Stream
- Create Offer Svc
- Order History Svc
- Order Proc Stream
- New Acct Stream
- Profile Svc
- Perms Svc
- Friends n Fam Svc
- Register Svc

Internal Developers
- Third-party Approved Apps
- Customers
- Public App Developers
- Partners
The Future is Integration: No Code, Low Code, and Ephemeral Apps

What is IFTTT?

- Automatically turn on your Hue lights when you get close to home
- Back up photos you're tagged in on Facebook to an iOS Photos album
- Get a reminder notification if you haven't hit your Fitbit goals by a certain time
- Open the garage when your BMW enters the driveway
- Automatically keep a playlist of your Spotify Discover Weekly recommendations

Example:
```
curl -s http://playground.localhost/time
```
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