

What You Need to Know Before Launching Your API

Learnings from  **svix** and other APIs

Tom Hacoen
DeveloperWeek 2023

@TomHacoen
www.svix.com

Who am I?

- Founder and CEO of Svix - Webhooks as a Service
 - Help companies send webhooks
 - An API first developer tool
- Open source dev and maintainer
- Previously led teams at Samsung and the Israeli intelligence corps





General Guidelines



Keep It Simple Silly

- Complexity is your biggest enemy - avoid if possible
- Prevents you from moving fast
- Many points of failure
- Hard to reason about

There is good debt and bad debt

Good debt



Bad debt



Understand your tech stack

- Different technology comes with different trade-offs
- Do you care about consistency? Availability?
- Know the tools you use and their limitations



Understand the Problem

Know your customers


- What do they want?
- What do they care about?
- What would they hate?
- Have the curiosity of a child.



*“If I asked people what they wanted, they
would have asked for a faster horse.”*

— Henry Ford



A close-up, low-angle shot of a person's hand holding a black power drill. The drill is positioned vertically, with its bit just above a series of pre-drilled holes in a long, dark metal rail. The rail is resting on a dark, textured workbench. In the background, a red container filled with drill bits is visible, along with other tools like a wrench and a screwdriver. The scene is dimly lit, with the primary light source highlighting the drill and the rail.

**It's not what you do,
it's what you enable**



Understand the solution

- Have a deep understanding of your chosen solution
- But be flexible and dynamic
- *“Everyone has a plan until they get punched in the mouth” — Mike Tyson*

An aerial view of a construction site on a steel deck. Two workers in orange safety gear are visible. One worker is kneeling near a yellow power tool, possibly a saw. The other worker is standing, holding a green strap. The deck is covered with a grid of steel reinforcement bars (rebar) and several large coils of blue material. Numerous steel beams and rods are scattered around the workers. The text "Set the right foundations" is overlaid in white, bold, sans-serif font in the center of the image.

Set the right foundations



Manage API complexity

- Strive for simplicity, and learn to say no
- Be explicit, watch out for accidental flexibility
 - Especially watch out with GraphQL
- Can't break API - if you build it, you're stuck with it
 - Try to plan for forward compatibility
- Don't leak implementation details

The background of the slide is a photograph of a large, modern library. It features multiple levels with white bookshelves filled with books. There are several blue armchairs and small tables for study. The lighting is soft and even. The text is overlaid on the center of the image.

Choose your data layer wisely

“Bad programmers worry about the code. Good programmers worry about data structures and their relationships.”

— Linus Torvalds

A dark brown goat with horns, tied with a rope to a wooden post, standing in a dry, dusty environment. The goat is the central focus of the image, with its body and legs visible. The background is a dry, dusty ground with some sparse vegetation. The text is overlaid on the image, providing a message about product design.

People will still use it wrong

- Make it easy to use right
- Make it hard to use wrong
- Expect it to be used wrong and be ready

Find your north star

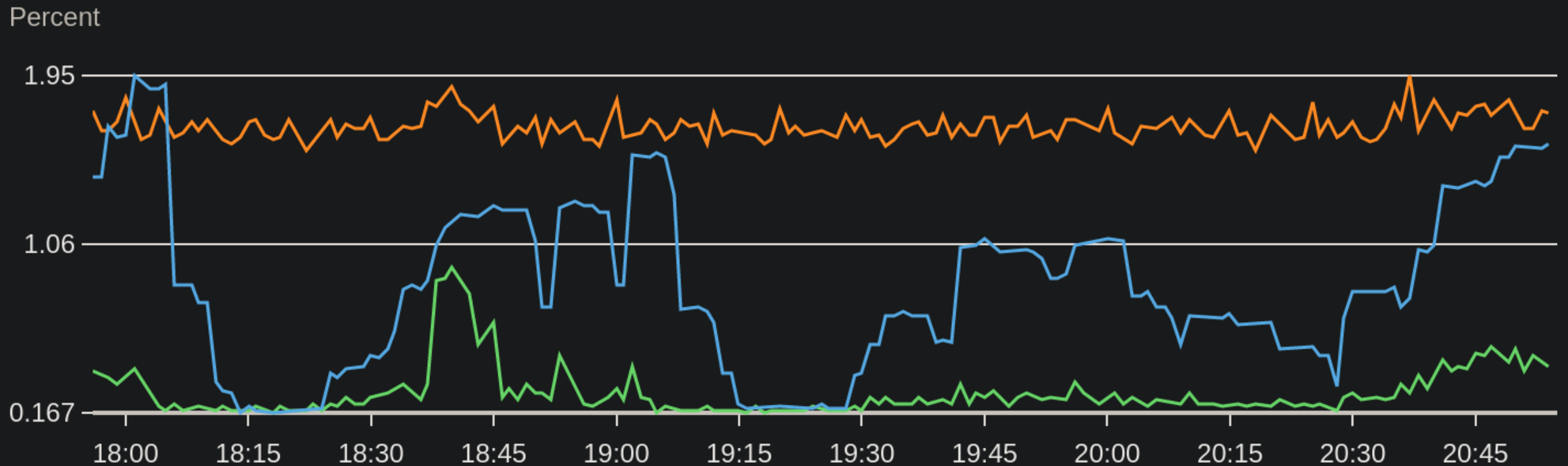
- For us it's RELIABILITY, so:
 - Never lose a message once accepted
 - Avoid downtime at all costs
 - High speed and low latency

An aerial photograph of a large cable-stayed bridge spanning a wide body of water. The bridge features two prominent white pylons with multiple stay cables. The bridge deck is filled with cars, and a small boat is visible in the water below. The background shows a distant shoreline with some buildings and greenery. The text "Be dependable" is overlaid in white, bold, sans-serif font in the center of the image.

Be dependable

Monitor everything

Have fully visibility into your systems





Ensure high availability

If you are down, your customers are down

A photograph of a long wooden pier extending into the ocean at sunset. The pier's structure, consisting of numerous vertical posts and horizontal beams, creates a strong sense of perspective as it recedes into the distance. The sky is a mix of soft orange and blue, and the water is calm. The text "Know your dependencies" is centered in a white, sans-serif font.

Know your dependencies



When things go wrong

- Hope for the best, prepare for the worst
- Have backups and a disaster recovery plan
- Have accountability (public status page)
- Do post-mortems to understand failures



Don't aim for 100% uptime

- 100% uptime is not achievable, you gotta stop somewhere
 - E.g. destruction of the earth is out of scope
- Law of diminishing returns
- Chasing 100% can make things more brittle
 - Which leads to less uptime...

Follow security best practices

- Application security (secure coding, updating deps...)
- Operational security (patching, training...)
- Least privilege access control
- Customer data segmentation
- Paper trail - log all access and operations
- Alert on security anomalies data access




Make security easy for your customers

- Role based access control
- Enable key rotation and scoped keys
- Educate them about security with your service
- Make it hard to get security wrong

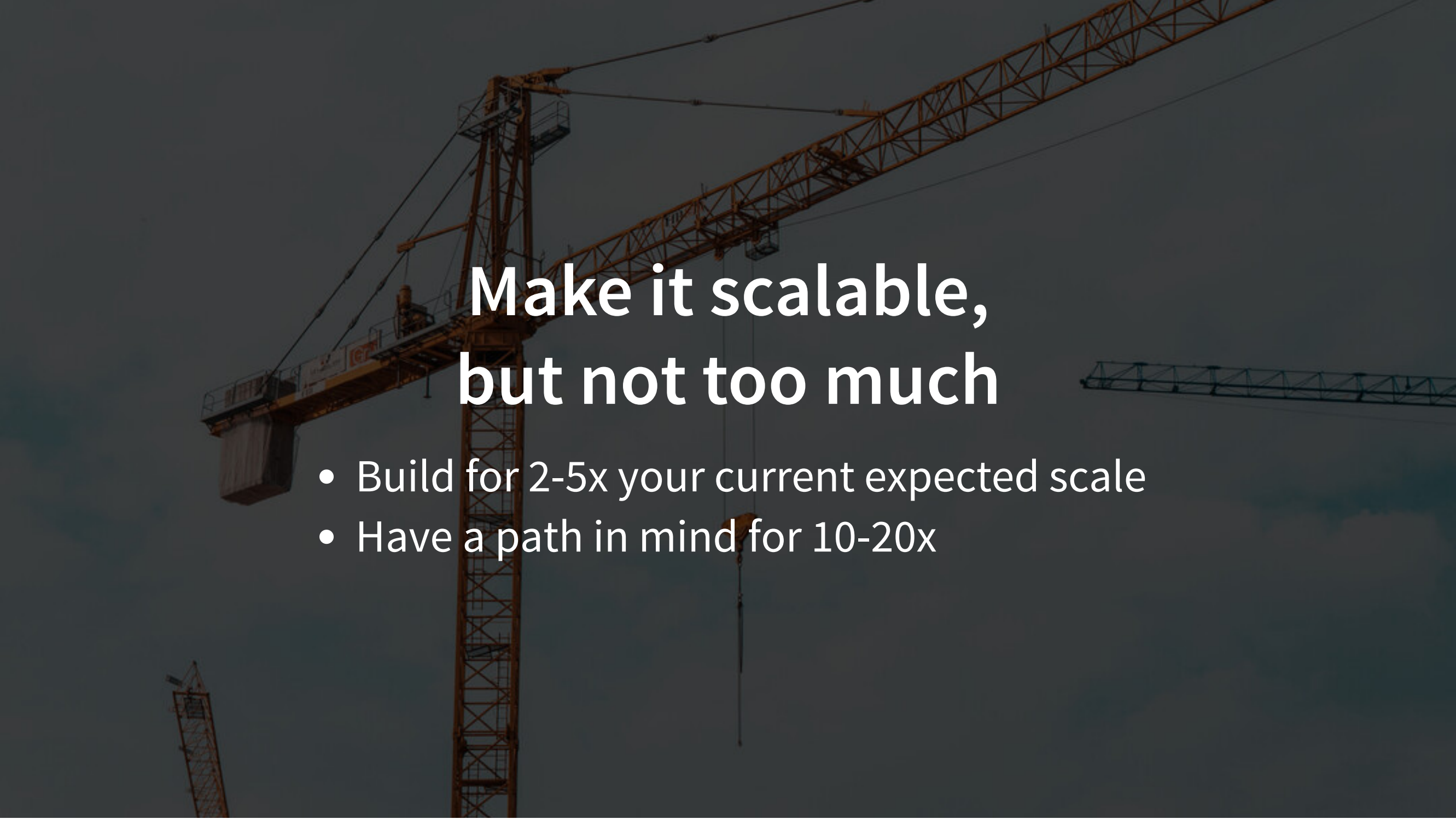


It's more than just code

- There is a lot of devops
- There is a lot of infrastructure
- Use infra-as-code - don't touch the UI!
- Build or buy? I prefer buy

A perspective view of a modern glass and metal walkway or bridge, receding into the distance. The walkway is flanked by glass railings and metal supports, creating a sense of depth and movement. The background is dark, emphasizing the structure.

**Prepare for the future,
but build for the present**

A large yellow construction crane is the central focus, its lattice boom extending diagonally across the frame. The crane is set against a dark, overcast sky. In the background, other cranes are visible, including a blue one on the right and a smaller yellow one in the bottom left. The overall tone is industrial and somewhat somber due to the dark lighting.

Make it scalable, but not too much

- Build for 2-5x your current expected scale
- Have a path in mind for 10-20x

An aerial photograph of a dense city skyline, likely New York City, taken at dusk. The sky is a deep blue with scattered clouds, and the city lights are beginning to glow. The text is overlaid on the center of the image.

Anticipate future needs

- Multiple regions & multiple environments
- Role base access control



Be flexible and extensible

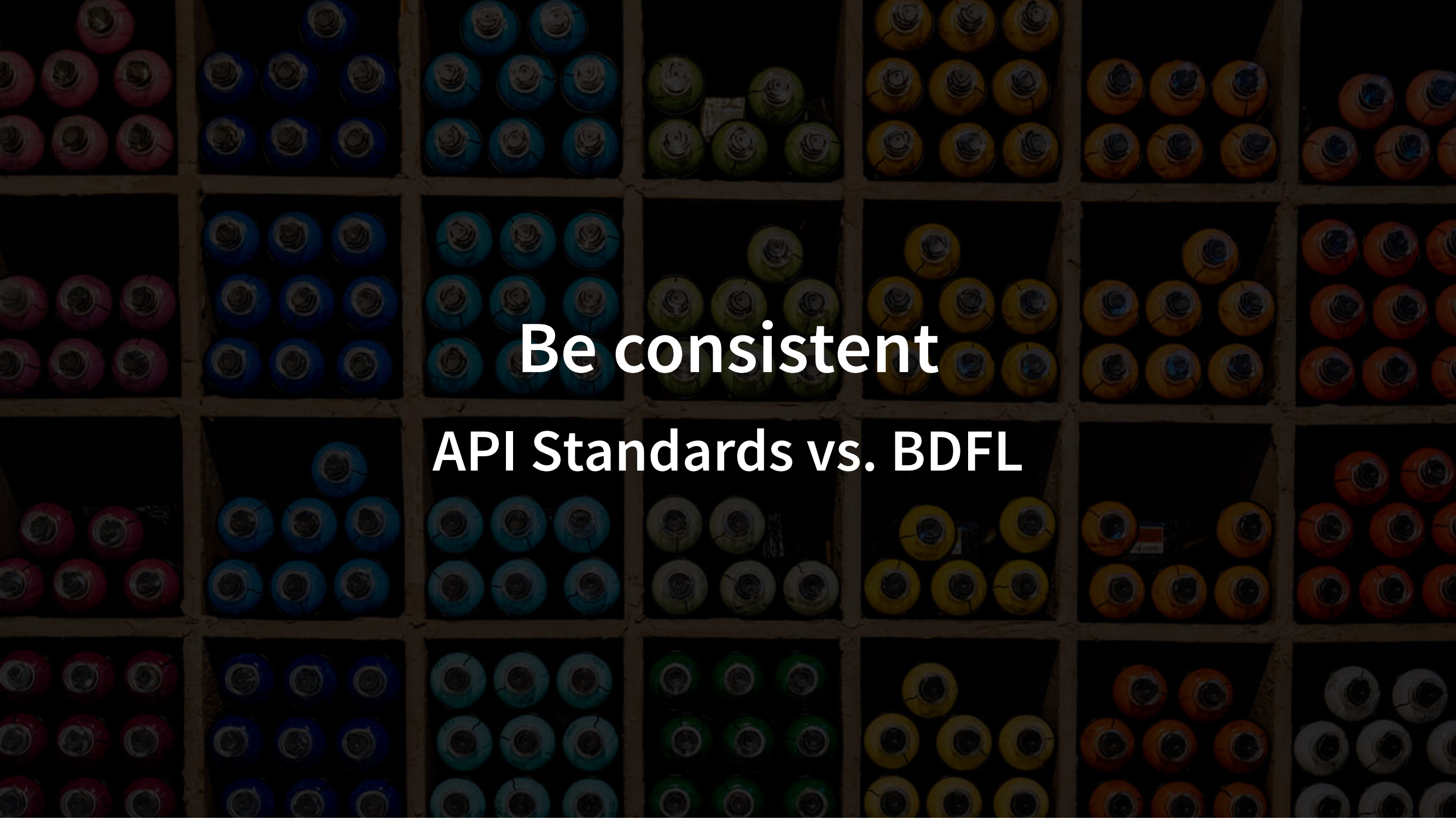
- Your customers are developers
- Let them build cool things with your product

Send webhooks

- Enables real-time interactions with your system
- Your customers want it to build integrations
- Make sure it's reliable (retry, scaling, etc.)
- Watch out for security implications (SSRF, MITM, replay)
- Don't forget about monitoring, fanout, more...

The devtool equivalent of UX

A close-up photograph of a person's hand holding a black pen, drawing a wireframe on a notepad. The wireframe consists of several rectangular boxes connected by lines, representing a user interface layout. The hand is wearing a ring on the ring finger. The background is dark and out of focus.



Be consistent

API Standards vs. BDFL

Great docs make the difference

- Both overview and deep-dive
- Both beginners and advance
- Show how your API should be used
- Don't assume people know your product
 - The curse of knowledge



Don't forget about tutorials

- Guide developers through common uses
- Get them started quickly - easy onboarding
- Highlight cool features

Super
Helpful

Even developers need support

Have a great API

Good

```
await fetch('https://api.svix.com/api/v1/app/', {
  method: 'POST',
  headers: {
    'Content-Type': 'application/json'
    'Accept': 'application/json'
    'Authorization': 'Bearer ' + token,
  },
  body: '{"name": "some name", "uid": "app_234"}',
});
```


Have an awesome SDK

Better

```
const svix = new Svix(token);  
  
await svix.application.create({  
  name: "some name",  
  uid: "app_234",  
});
```

A few SDK tips

- Consistent with language first, across SDKs second
- User-Agent: `svix-libs/1.29.0/python`
- X-Request-ID: `f058ebd...344e8cde5`
- Automatic retries in short intervals
 - Include attempt count in header
 - Reuse request-id
- Show X-Request-ID in SDK errors

A knight in full plate armor is riding a white horse. The knight is holding a sword aloft in his right hand. The horse is wearing a blue and yellow striped surcoat. The background is a dark, blurred landscape.

Be defensive and helpful

Tag your auth tokens

testsk_1F00EQKwBr7VYC0qpFW7XGYIBycWgqcB.eu

- test: optional test environment indicator
- sk: type of key (secret key, public key, etc.)
- 1F00EQKwB...BycWgqcB: random token
- eu: region

Add the shape to secret scanning databases

Tag your IDs

```
// Application token  
app_29we3mZemNijHrQcrLlJG1pRCst
```

```
// Endpoint token  
ep_1uikje8Xw8Z3GaSwtUYmIBhhYTN
```

```
// Message token  
msg_270EWmNfwpCwutpZ4GVeypLvvp
```

Support user-defined IDs

```
await svix.application.create({  
  name: "some name",  
  uid: "my-app-123", // This is your customers' internal ID  
});  
// Created ID: app_29we3mZemNijHrQcrLlJG1pRCst  
  
// These IDs can then use interchangeably  
await svix.endpoint.list("app_29we3mZemNijHrQcrLlJG1pRCst");  
await svix.endpoint.list("my-app-123");
```


A silhouette of a person standing in a doorway, looking out at a sunset. The person is holding a suitcase. The sky is filled with colorful clouds in shades of orange, yellow, and blue. The ground is a dark, gravelly path.

Closing words

- Main takeaway: it's not all about the code
- These worked for us, you may be different

Questions?

- For webhooks, check out  **svix** at www.svix.com
- Something missing? Tweet at [@TomHacohen](https://twitter.com/TomHacohen)

