

“Me” Facts

I worked for a 5 people startup and for an 800 people company that got acquired by Cisco.

I started my career as a front-end developer.



I am

Alina

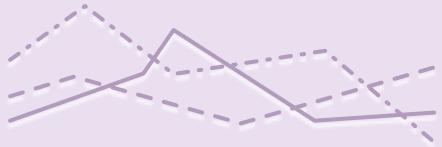
ah-lee-nah

Bochkacheva

bah-chkah-che-vah

I am a product designer.

I have been doing design work for the past seven years spanning across education, social media, and cyber security industries. Most recently, I have been at Duo Security where I was one of the founding designers, starting with a team of 3 just three years ago and now growing to a size of 20+.



Device Insight

Security now is everybody's problem, small or big companies. Attackers are targeting end users which means companies need to protect them.

70% of breaches happen because of compromised user devices.

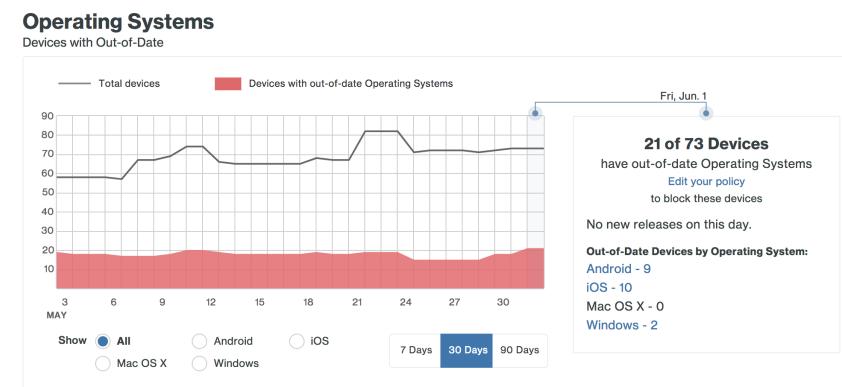
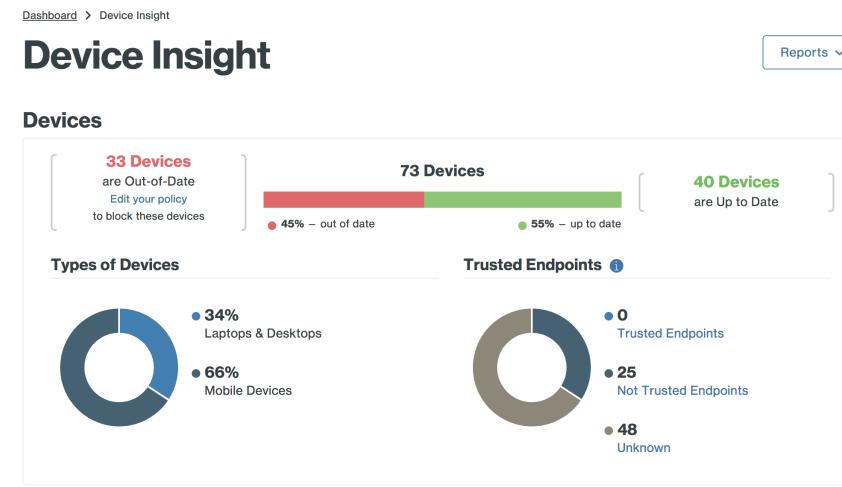
These devices are a threat to the security of a company, are open to security vulnerabilities, and leave open doors to data that needs to be protected.

Pre-story

Device insight was the first data visualization feature released for Duo Security customers in early 2016

Back in 2016..

Duo launched a feature called “Device Insight” that provided visibility into devices that were accessing company’s data.



- Is this device up to date?
- Is the disk encrypted?
- Is screen lock enabled?
- Who owns it?
- How is the environment doing over time?



Personas

- Who are we building for?
- What are their concerns and pains?
- What are their motivations?



Gary

Gary is an **IT administrator** with about a decade of experience. His motivations are:

- Keeping all data secure
- Seeing exceptions in systems: what's out of the ordinary
- Navigating politics to get buy-in from stakeholders



Eve

Eve is an **end user**. She is not tech-savvy and relies on Gary to tell her what to do. Her concerns and pains are:

- “I’m truly not a security expert”
- Usually I ask Support for help; “There are self-serve links?”



Challenges

Another challenge we had is additional data that we were tracking but not displaying anywhere. This data contained information around corporate devices and personally owned devices (BYOD).

If I can write the policy saying if you are on the latest 10.10, 10.11, 10.12 you are good!

As it stands now, I can set a policy that will block user access based on their OS version, but it does not provide any lead time or warning.



I've been reviewing our Device Insight reports as we scale out our use of Duo. One thing that doesn't make sense to me. Why is OS X 10.10.5 reported as out of date?

Why is everything red!?

It was clear.. **Garys were not happy.**



Research

- What are the pains?
- What is the current usage?
- What is missing?

Customer visits

I visited 5 customers in the Bay area (including Facebook) to talk about how they set requirements around devices, what is their ideal state, and how can we at Duo help them to understand information around devices and take actions.

Tech support tickets

I searched through our database of tech support tickets with relevant key words. I was able to locate a couple dozen tickets.

Data and analytics

Using an internal logging system (Kibana) and Google analytics, I was able to dig into how often customers interact with the current Device page and if they perform any actions on the page.

Research into Apple, Google, and Microsoft support

I looked into how long these companies officially support their operating systems (OS). This would allow us to map the data that we gather correctly.



Research

What have we learned?

1 Duo's definition of "up-to-date device" doesn't match with customer's definition

Duo considered devices to be up to date only if they were on the latest operating system. I learned this was a bit extreme. Garys care more about security. This meant if a device has all the latest security patch installed, it was good to go.

Secure version > Latest version

2 Duo's data on Windows devices created inaccurate perception

Duo can only indicate the version of a WIndows operating system such as Windows 7, Windows 8, etc., but Duo couldn't detect patches. It meant calling Windows 10 up to date was inaccurate as what mattered is if it had the latest security patch.

Less information > Incorrect information

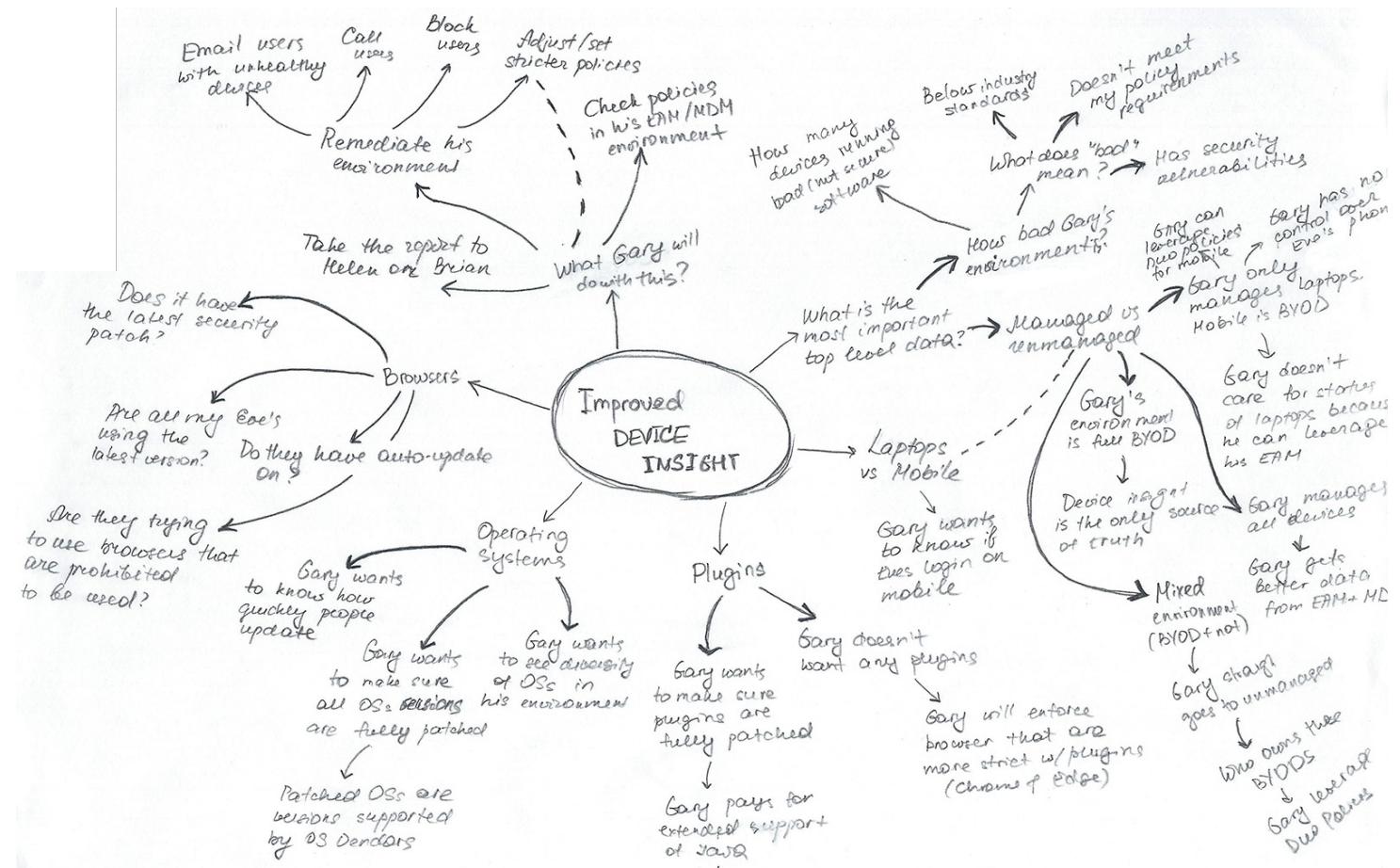


Design Process

Bring in all the data

Step 1. Mind map

First, I created a mind map. This was an excellent exercise to broaden the boundaries of thinking, expose hidden connections, and think “outside of the box”.

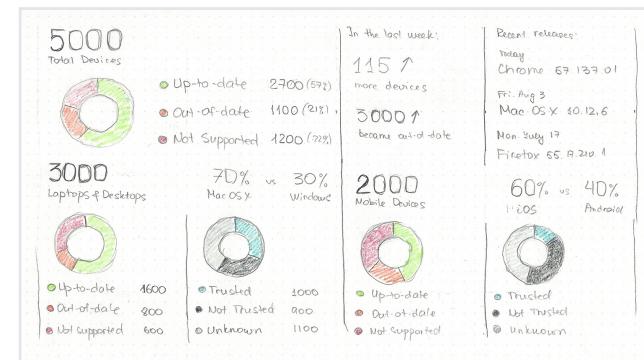
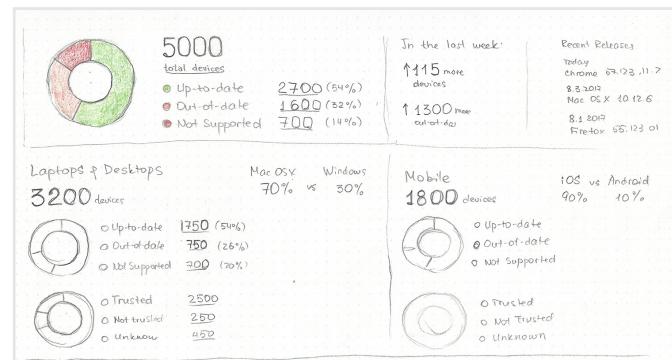
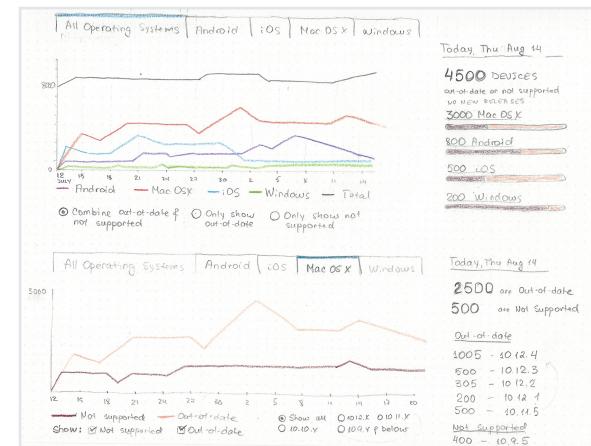
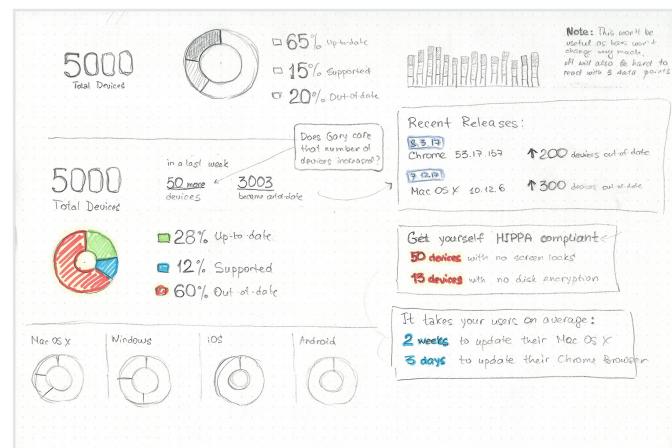


Design Process

Pencil and paper are the cheapest and most rapid ways to iterate upon your ideas. This way you don't get attached to them.

Step 2. Sketching ideas on paper

At this stage it's important not to constrain yourself with ideas. I shared the sketches with my engineers and PMs and was able to identify which ideas were not feasible.



Design Process

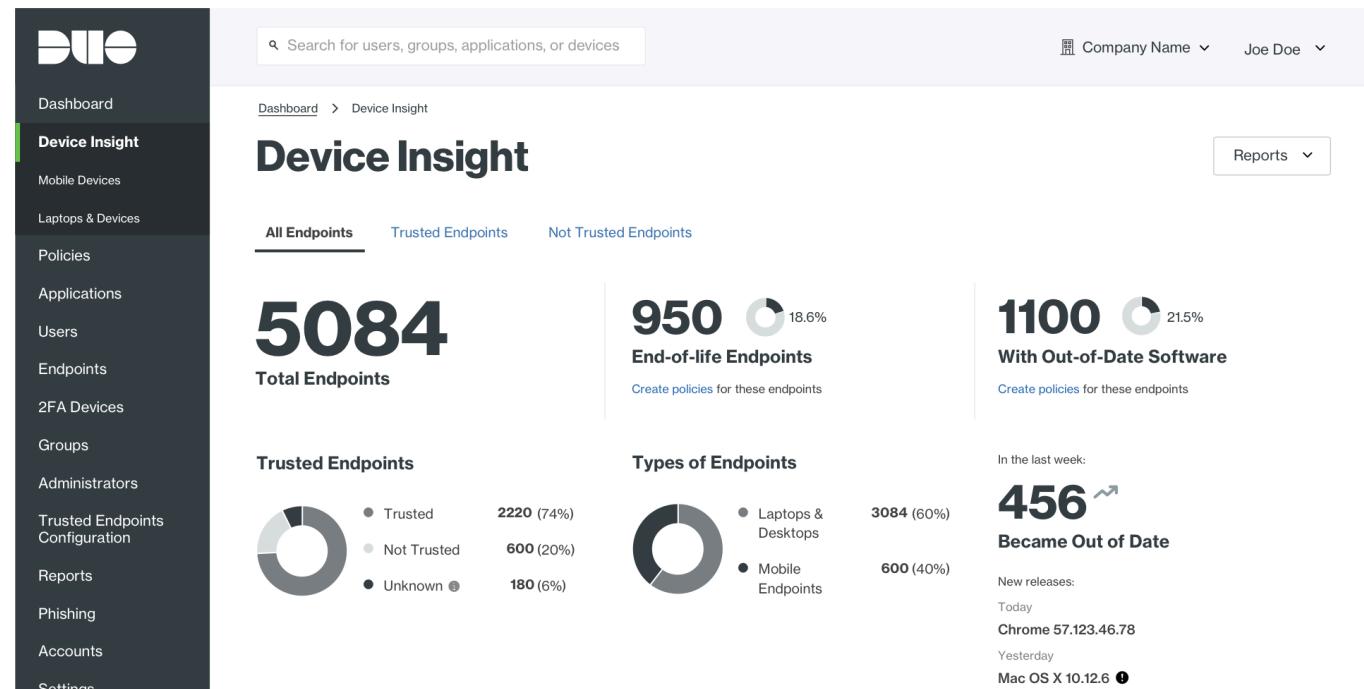
UX interviews are great opportunities to bring everyone onto the same page. I made it mandatory for my engineers to attend at least a few of these calls.



Step 3. Rough mockups

Rough mockups are something in between wireframes and hi-fidelity sketches. The goal here is not to decide on visuals, but rather find a solution. I use rough mockups to start conversations with our customers, something that at Duo we called “UX interviews”. These interviews help me define:

- Are we on the right track?
- Is there data that is missing?
- Can our customers take actions on the displayed data?
- Is the terminology something that a customer understands and speaks?





Design Process

Step 3. Rough mockups

Feedback from these UX interviews helps me iterate quickly and converge to find a solution.

DEVICE INSIGHT top V2

Category	Total	Status
All Devices	5000	Up-to-date: 2700 (54%) Out-of-date: 1500 (30%) Not supported: 1200 (26%)
Laptops & Desktops	3000	Up-to-date: 1800 (60%) Out-of-date: 810 (27%) Not supported: 390 (13%)
Mobile Devices	2000	Up-to-date: 700 (35%) Out-of-date: 800 (40%) Not supported: 500 (25%)

DEVICE INSIGHT top V5

Category	Total	Status
All Devices	5034	Up-to-date: 2734 (54%) Out-of-date: 1100 (22%) Supported (For Windows): 300 (6%) Not supported: 900 (18%)
Laptops & Desktops	3000	Trusted: 2220 (74%) Not Trusted: 600 (20%) Unknown: 180 (6%)
Mobile Devices	2034	Trusted: 667 (33%) Not Trusted: 800 (39%) Unknown: 540 (28%)

DEVICE INSIGHT top V6

Category	Total	Status
All Devices	5034	Up-to-date: 2734 (54%) Out-of-date: 1100 (22%) Supported (For Windows): 300 (6%) Not supported: 900 (18%)
Laptops & Desktops	3000	Trusted: 2220 (74%) Not Trusted: 600 (20%) Unknown: 180 (6%)
Mobile Devices	2034	Trusted: 667 (33%) Not Trusted: 800 (39%) Unknown: 540 (28%)

DEVICE INSIGHT top V7

Category	Total	Status
All Devices	5034	Supported: 4134 (82%) Not Supported: 900 (18%)
Trusted Devices	3000	Trusted: 2220 (74%) Not Trusted: 600 (20%) Unknown: 180 (6%)
Not Treated Devices	2034	Trusted: 667 (33%) Not Trusted: 800 (39%) Unknown: 540 (28%)

DEVICE INSIGHT top V11

Category	Total	Status
All Devices	5034	Supported Operating Systems: 4134 (82%) Not Supported Operating Systems: 900 (18%)
Trusted Endpoints	3000	Trusted: 2220 (74%) Not Trusted: 600 (20%) Unknown: 180 (6%)
Not Treated Endpoints	2034	Trusted: 667 (33%) Not Trusted: 800 (39%) Unknown: 540 (28%)

DEVICE INSIGHT top V14

Category	Total	Status
All Devices	5084	Unhealthy Endpoints: 500 vendor not supported OS Total Out-of-date: 750 out-of-date
Trusted Devices	2050	Unhealthy Endpoints: 500 vendor not supported OS Total Out-of-date: 750 out-of-date
Not Treated Devices	3034	Unhealthy Endpoints: 500 vendor not supported OS Total Out-of-date: 750 out-of-date
Mobile Devices	2000	Unhealthy Endpoints: 500 vendor not supported OS Total Out-of-date: 750 out-of-date

DEVICE INSIGHT top V17

Category	Total	Status
All Devices	5084	End-of-life Endpoints: 950 With Out-of-Date Software: 1100 Became Out-of-Date: 3245
Trusted Endpoints	950	Became Out-of-Date: 3245
Not Treated Endpoints	1100	Became Out-of-Date: 3245

DEVICE INSIGHT top V20

Category	Total	Status
All Endpoints	5084	End-of-life Endpoints: 950 (18.6%) With Out-of-Date Software: 1100 (21.6%) Became Out-of-Date: 3245
Trusted Endpoints	950	With Out-of-Date Software: 1100 (21.6%) Became Out-of-Date: 3245
Not Treated Endpoints	1100	With Out-of-Date Software: 1100 (21.6%) Became Out-of-Date: 3245

DEVICE INSIGHT top V21

Category	Total	Status
All Endpoints	5084	End-of-life Endpoints: 950 (18.6%) With Out-of-Date Software: 1100 (21.6%) Became Out-of-Date: 3245
Trusted Endpoints	950	With Out-of-Date Software: 1100 (21.6%) Became Out-of-Date: 3245
Not Treated Endpoints	1100	With Out-of-Date Software: 1100 (21.6%) Became Out-of-Date: 3245

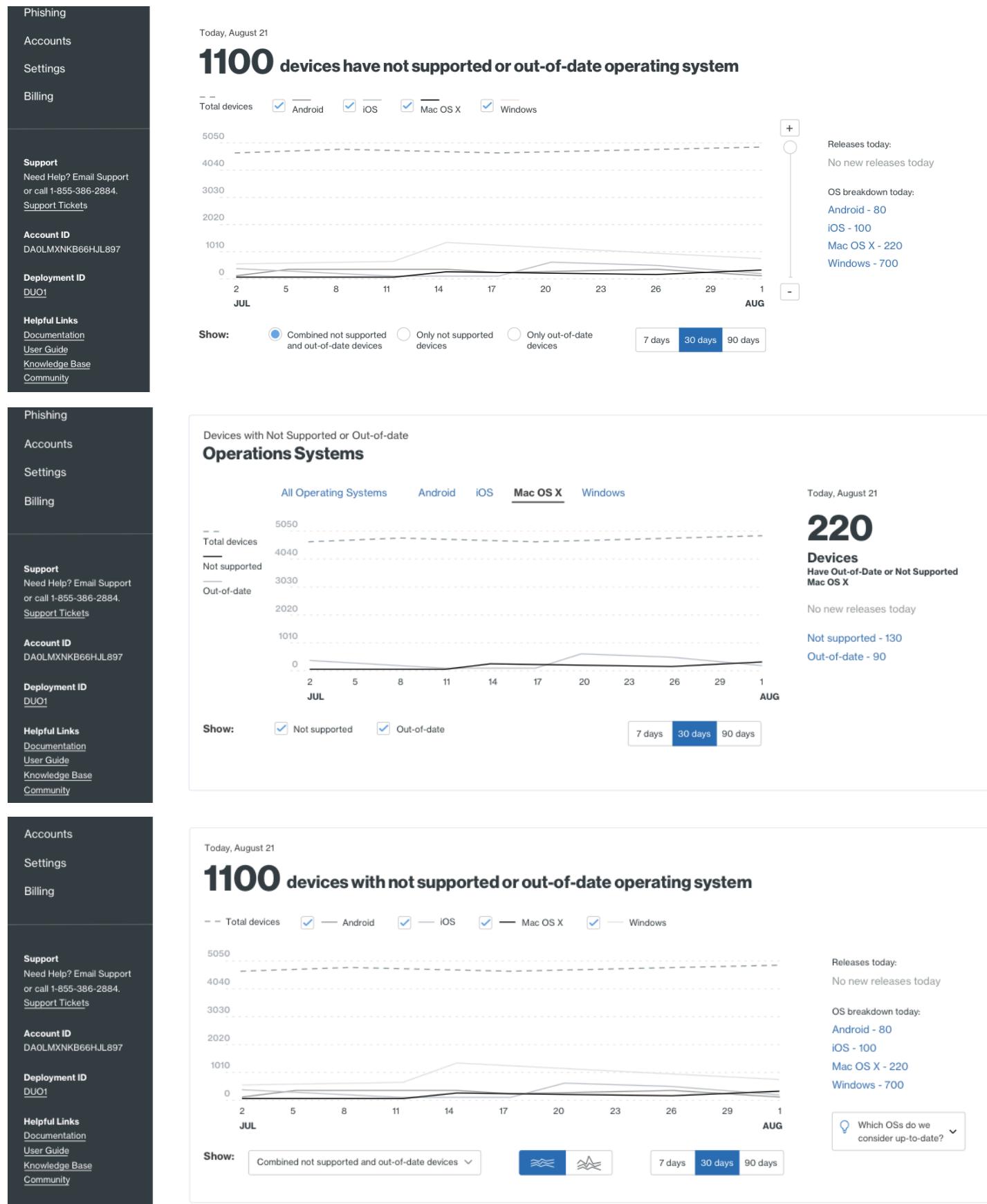


Design Process

Step 3. Rough mockups

The most important question to ask at these interviews is:

“What would you do next having all this data?”



Design Process

Visual design is not just eye candy. Often times users trust the credibility of the product based on visuals. Consistent visuals (aka design patterns) build stronger brands.

Step 4. Visual design

To guide the visuals the right direction, the following questions had to be answered:

- What value can I provide immediately?
- Which information is central and which is supportive?
- Which types of visualization provide the best way to compare?
- Which types of visualizations are best suited for data that I had?
- How can I tell a story not just display numbers?

The immediate value I could provide is an instant look into how many risky devices are in Gary's environment. Then, show trends such as when new updates are available and how quickly his users update their software.



Design Process

Why not use green for “good” devices that are up to date?

Green is a bright color and brings a lot of attention. The emphasis needed to be placed on devices that needed fixing. Ultimately, Gary would not do anything with these devices.



Step 4. Visual design: Colors and text



Red

Used for high-risk devices that need immediate attention such as end-of-life devices.



Orange

Used for medium-risk devices that need attention such as out-of-date devices.



Grey

Used for devices that are up to date.



Green

Used only for trusted devices (devices that are corporate owned)

Secondary colors for line graphs



H1

H2

H3

Regular text

Help text

Links

Design Process

Pie charts also work really well for a set of three data points. However, it's very hard to compare data on multiple pie charts.



Step 4. Visual design: Graphs

I had to show macOS, Windows and mobile operating systems in a way that was easily comparable. Within each group, there were two or three sets of data. I picked horizontal bar graphs to convey this data. They are easy to read and easy to compare, especially, when you have only three points of data.



- **End-of-Life** **12%** (120)
- **Out-of-Date** **32%** (295)
- **Up-to-Date** **55%** (507)

For showing trends of out of date devices, I chose line graphs. These graphs best suited to show data over time. However, since there were multiple line graphs, it meant they had to overlap. To increase accessibility, I chose not to just rely on colors, but also add unique patterns to each graph.



Design Process

Keeping everything to a grid eases visual load and helps eyes to track information in more predictable ways.

Step 4. Visual design: Layout



3-column layout at the top to show risky devices



Operating systems section



6-column layout to display total number of risky devices and devices per each operating system



Trend graphs spanning across an entire page



Browsers section



6-column layout to display total number of risky devices and devices per each operating system



Trend graphs spanning across an entire page



Plugins section



6-column layout to display total number of risky devices and devices per each operating system



Trend graphs spanning across an entire page



Design Process

The biggest difference between usability testing and UX interviews is that during usability testing Garys need to accomplish a task/tasks. The way you measure the success is by simply marking if the task was passed.



Step 5. Hi-fi prototype and usability testing

After reviewing work with engineering, PMs, and going through multiple rounds of critique with other designers, it was time to put the design up to some usability testing.

Usabiity testing at Duo looked like this:

1 **5** **30**
day **Garys** **Minutes**

The script was put together by a user researcher and me. The test was moderated by the user researcher.

The usability testing was open to anyone at Duo, but I would always encourage engineers and PMs to come and sit at at least one session.



Device Insight

All Endpoints (2243) Trusted Endpoints (1660) Not Trusted Endpoints (448)

Mac OS X (922) Create Mac OS X Policy

- End-of-Life: 12% (120)
- Out-of-Date: 32% (295) [More details >](#)
- Up-to-Date: 55% (507)

Windows (340) Create Windows Policy

- End-of-Life: 37% (92)
- Supported by Microsoft: 63% (248) [More details >](#)

Android, iOS (981) Create Policy

- End-of-Life: 33% (324)
- Out-of-Date: 43% (422)
- Up-to-Date: 24% (235)

Trusted Endpoints

- Trusted: 74% (1660)
- Not Trusted: 20% (448)
- Unknown: 6% (135)

Endpoints With Out-of-Date Operating Systems

620 Which OSs do we consider up-to-date? ▾

Create policies for these endpoints

Last 30 days

New release occurred Android iOS Mac OS X

Endpoints With Out-of-Date Browsers

890 Which browsers do we consider up-to-date? ▾

Create policies for these endpoints

Last 30 days

New release occurred Chrome Edge Firefox IE Safari

Design Process

Step 6. Final design

After three rounds of usability testings with external Garys, all usability issues were addressed:

- Interface was simplified and unnecessary elements were removed
- All terminology was verified and in case when I had to use unique uncommon terms, I always provided a way to explain them
- All the design patterns went through reviews with other designers to ensure consistency in the Duo product

Lastly, I created design specs to help engineers navigate through design.



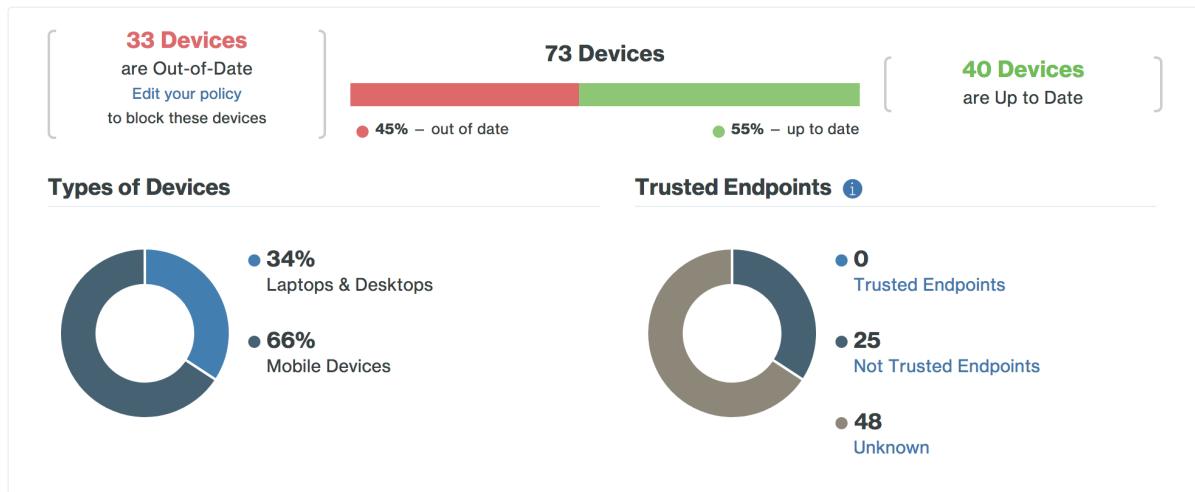


[Dashboard](#) > Device Insight

Device Insight

[Reports](#) ▾

Devices

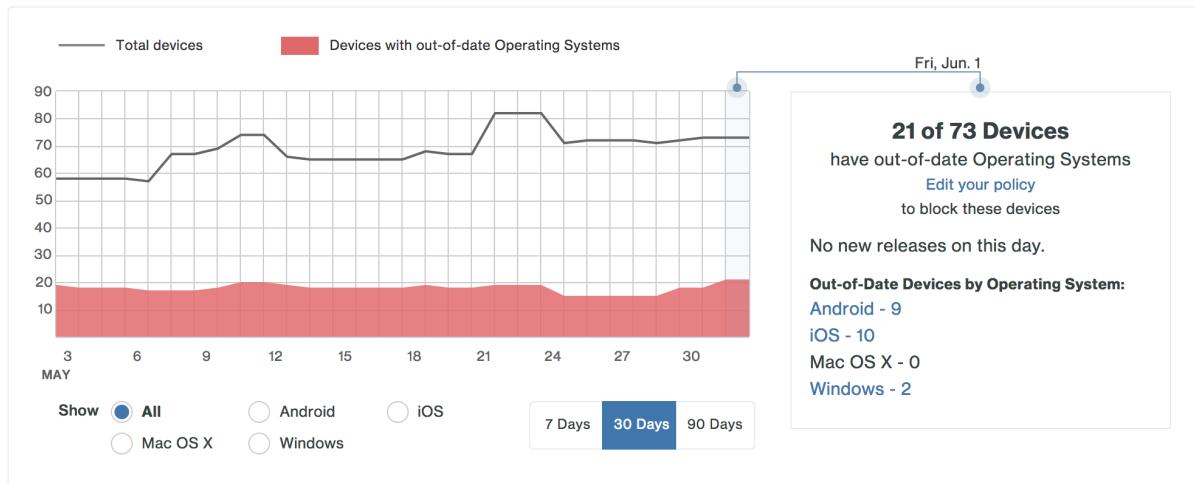


What is an out-of-date device?

A device is considered out of date if its operating system, browser, or plugins were not on the latest version when the user last accessed the Authentication Prompt. [Learn more about devices and endpoints](#) ⓘ.

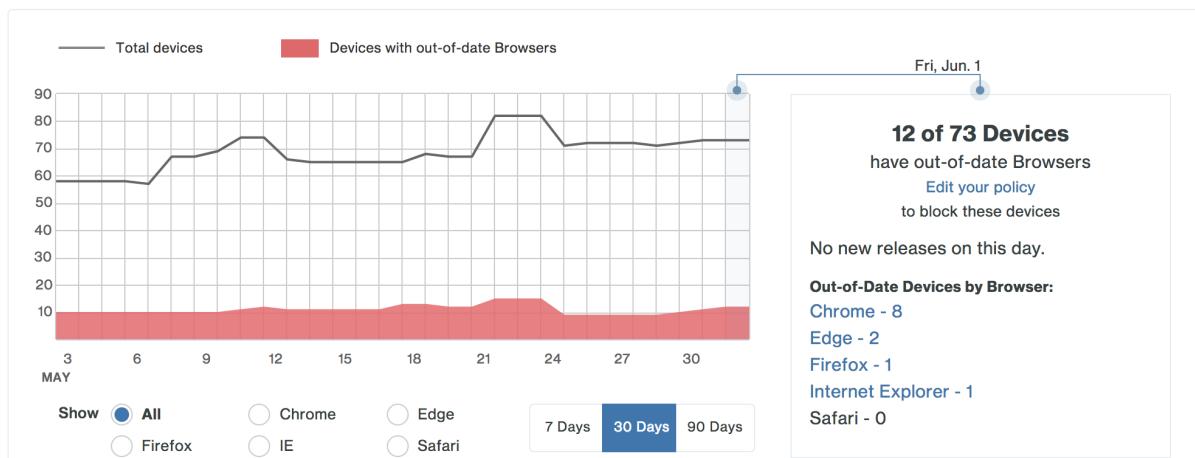
Operating Systems

Devices with Out-of-Date



Browsers

Devices with Out-of-Date





Dashboard

Device Insight

- Mobile Devices
- Laptops & Devices

Policies

Applications

Users

Endpoints

2FA Devices

Groups

Administrators

Trusted Endpoints Configuration

Reports

Phishing

Accounts

Settings

Billing

Support
Need Help? Email Support or call 1-855-386-2884.
Support Tickets

Account ID
DAOLMXNKB66HJL897

Deployment ID
DUO1

Helpful Links
Documentation
User Guide
Knowledge Base
Community

Search for users, groups, applications, or devices

Company Name: Joe Doe

Endpoint Insight

All Endpoints (2243) Trusted Endpoints (1660) Not Trusted Endpoints (448)

macOS (922) Create macOS Policy **Windows (340)** Create Windows Policy **Android, iOS* (981)** Create Policy

macOS Status:
End-of-Life 12% (120)
Out-of-Date 32% (295)
Up-to-Date 55% (507)

Windows Status:
End-of-Life 37% (92)
Supported by Microsoft Duo can only determine major Windows versions, not patch levels.
Out-of-Date 43% (422)
Up-to-Date 24% (235)

Android, iOS Status:
End-of-Life 33% (324)
Out-of-Date 43% (422)
Up-to-Date 24% (235)

* Access devices + 2FA devices with Duo Mobile installed

Trusted Endpoints

Today's Snapshot

620 Create policies for these endpoints **300** Android View endpoints **186** iOS View endpoints **134** macOS View endpoints

Historical Data

Last 30 days

New release occurred Android iOS macOS

Endpoints With Out-of-Date Operating Systems

Which OSs do we consider up-to-date? ▾

Today's Snapshot

890 Create policies for these endpoints **180** Chrome View endpoints **120** Edge View endpoints **220** Firefox View endpoints **320** Internet Explorer View endpoints **30** Safari View endpoints

Historical Data

Last 30 days

New release occurred Chrome Edge Firefox Internet Explorer (IE) Safari

Conclusion

Conclusion

Device insight was a massive project that lasted 5 months. However, success of it relied on continued collaboration amongst many people and teams:

- engineering team
- a product manager
- other designers
- pattern library team

The project was launched in August 2018. We are building better metrics to track how engaged our customer will be with this page.

