Introducing: The New Reliability

By Emily Arnott

What is reliability?

Maybe with error rate?

Isn't reliability just your uptime?

Consistent speed matters too!

Google says to consider the customer's expectations

But how?

Get on board with reliability!

Outage cost company about $164,000 a minute in revenue, while stock's decline wiped away more than $40 billion in market cap and cost Mark Zuckerberg roughly $6 billion personally

An Incalculable Cost

The big question is what this all means in terms of costs. The easiest ones to calculate are the costs directly to Rogers itself. After promising a rebate of 5 days of service ~~charges (from an earlier promise of 2 days). Rogers is on the hook for that lost revenue~~ from almost 11 million subscribers or around ... approximately $3.80 per subscriber is ... That could be over $4 billion right ther...

Calculating the cost of downtime

Understanding the financial impact of major incidents

In March 2015, a 12-hour Apple store outage cost the company $25 million.

In August 2016, a five-hour power outage in an operation center caused 2,000 cancelled flights and an estimated loss of $150 million for Delta Airlines.

In March 2019, a 14-hour outage cost facebook an estimated $90 million.

Our thesis

Product Health

Customer Happiness

Socio-technical Resilience

The reliability of flying

Product Health

Airline systems are working properly

The airplane is properly stocked

Customer Happiness

The airline prioritizes your needs

It's stocked with the things you want

Socio-technical Resilience

The pilot knows how to fly

The crew shows up on time
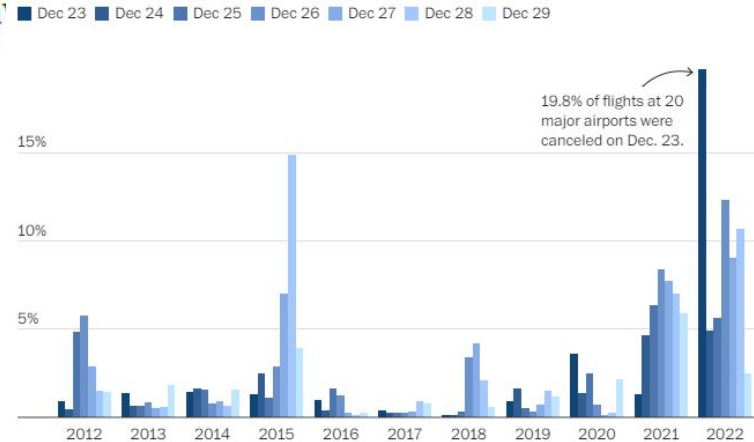
The crew is in good spirits and cooperative

The airport staff knows what to do

Holiday flight disasters

While the "once in a generation" winter storm is passing, the flight cancellations and delays are going strong. More than ~~3~~ were canceled Tuesday among all carriers, with Southwest accounting for more than 2,600 of the total.

More flights canceled at major airports this year

Dec. 23 saw more cancellations at major airports than any day during the winter holiday season in the past 10 years.

■ Dec 23 ■ Dec 24 ■ Dec 25 ■ Dec 26 ■ Dec 27 ■ Dec 28 ■ Dec 29

19.8% of flights at 20 major airports were canceled on Dec. 23.

The 20 airports include: Detroit (DTW), Minneapolis (MSP), Seattle (SEA), Chicago (ORD, MDW), Atlanta (ATL), Newark (EWR), New York (JFK, LGA), Boston (BOS), Phoenix (PHX), Fort Lauderdale (FLL), Baltimore (BWI), San Francisco (SFO), Miami (MIA), Houston (IAH), Los Angeles (LAX), Denver (DEN), Charlotte (CLT), Dallas/Fort Worth (DFW). Flight cancellations are preliminary for Dec. 27-29. Data as of Dec. 27 at 6 p.m. Eastern.

Source: FlightAware, Bureau of Transportation Statistics

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Holiday flight disasters

Product Health	Customer Happiness	Socio-technical Resilience
Bad weather	High demand	Automation becomes manual
Systems hit their limits	Poor communication	Undertrained staff
Flights cancelled	Inconsistent messaging	Understaffing

This type of unreliability is everywhere
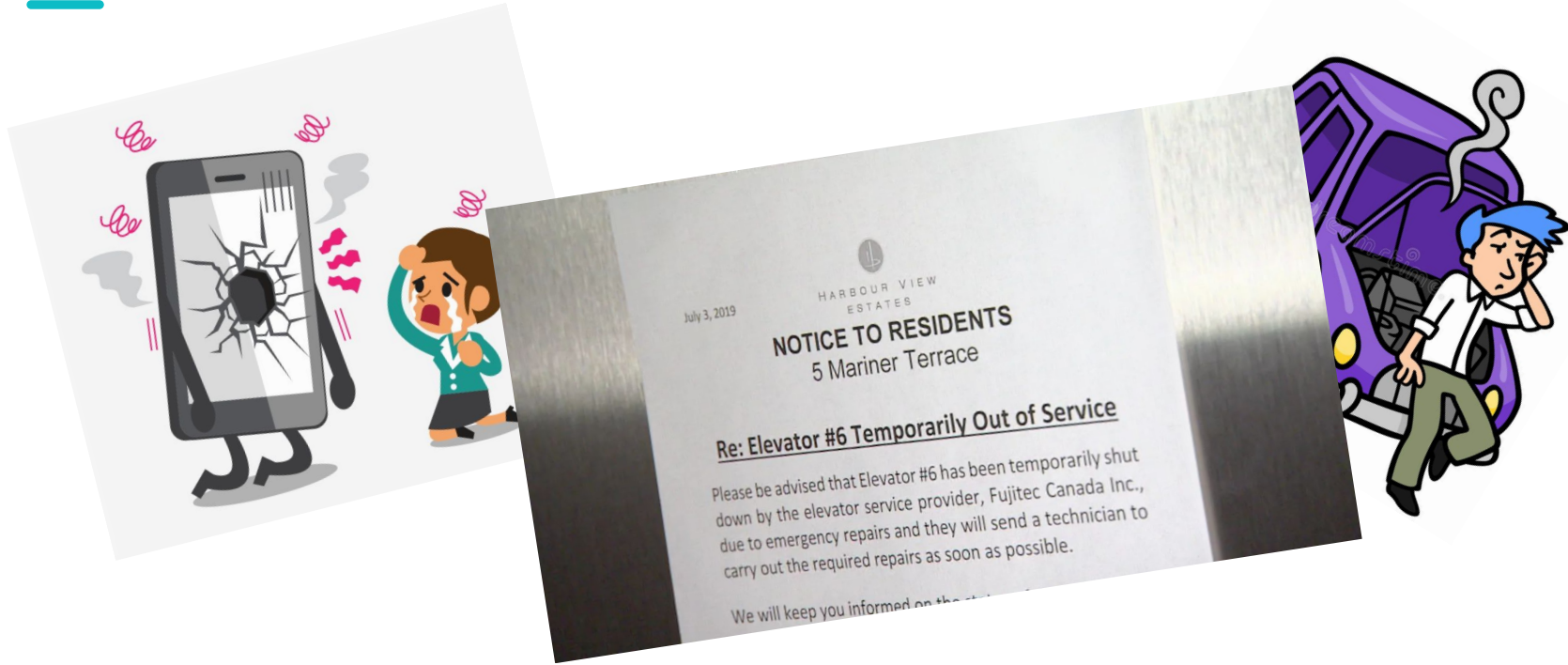
Let's take a tech example

	System Health	User Expectations	Sociotechnical Resilience
Service A	GOOD	MID	LOW
Service B	OK	HIGH	HIGH
Service C	BAD	LOW	HIGH

Let's break it down a bit further

Product Health

Observability, code stability, all of that input data.
Telemetry - gathering data from tools embedded in application code
Four Golden Signals:
  Latency
  Error Rate
  Traffic
  Saturation
These are the measurable facts about the way your service is functioning.

Customer Happiness

How happy are customers?
What does the user experience look like?
What is important to customers and what are their expectations?
Do the customers feel confident in your product and your business?
Does the customer feel supported? Informed?
Do your customers feel connected to you?

Socio-technical Resilience

How effective is our team during incident response?
Do we have clear service ownership?
Are teams aligned on their priorities and responsibilities?
Are on-call loads balanced?
Are people burnt out?
Are people equipped with the tools and knowledge they need?
Does your team still function if someone is suddenly away?

Why this definition works for you

ALIGNS your whole organization

MOTIVATES impactful changes

PRIORITIZES where changes are needed

How to measure the new reliability

What are the sources of manual labour for each type of incident?

There's a lot! We should work on automating parts of it.

How many incident hours has each engineer spent on-call?

The team for this incident type is always busy. We should consider expanding it!

How much time has your team spent fixing each service?

Our teams haven't had much experience with this going down. We should proactively practice!

In conclusion…

Your users' expectations

Your system's health

Your engineers' sociotechnical resilience

Citations

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