how SREs found more than $100 million using failed customer interactions (fcis)

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by the numbers...
We are a trusted part of people’s financial lives and a partner to merchants in 200+ markets around the world.

PayPal’s global customer service team provide support in more than 20 languages.

Our customers can accept payments in 100+ currencies, withdraw funds to their bank accounts in 56 currencies, shop cross-border across 19K corridors, and hold balances in their PayPal accounts in 25 currencies.

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<thead>
<tr>
<th></th>
<th>227M</th>
<th>18M</th>
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<tbody>
<tr>
<td>Consumer Accounts</td>
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<tr>
<td>Merchant Accounts</td>
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| $13.06B†               | $451B | 7.6B |
| REVENUE                | TOTAL PAYMENT VOLUME¹ | PAYMENT TRANSACTIONS² |
| $155B                  | 2.7B   |     |
| MOBILE PAYMENT VOLUME  | MOBILE PAYMENT TRANSACTIONS |

†Non-GAAP.
¹Total Payment Volume is the value of payments, net of payment reversals, successfully completed through our Payments Platform, excluding transactions processed through our gateway and Paydiant products.
²Payment Transactions is the total number of payments, net of payment reversals, successfully completed through our Payments Platform, excluding transactions processed through our gateway and Paydiant products.
More than $16,537 processed by PayPal every second.*
when you are dealing with people’s money, it’s bad when stuff doesn’t work...

...availability is very important!
so....how did we used to measure this?

availability = \frac{\text{total time} - \text{impact}}{\text{total time}}

with some less than perfect attribution!
what’s wrong with this?

• it assumes the rest of the time we’re at 100%

• it was only calculated for major site issues
  (and not the death of 1,000 cuts!)

• it only factors in payment-impacting issues

• it did not reflect merchant & consumer sentiment
we needed a new measurement which would:

• account for all of our experiences

• be highly actionable

• have proper attribution for ownership of failures

• not require us to ask 5,000+ developers to do something different
failed customer interactions (fcis)

definition:

intended actions that a customer is unable to complete using functionality offered by PayPal and allowed by PayPal policies
implementation
implementation
fcis by functionality
fcis by owner
fcis by region
fcis by region
exact impact of issues

fcis - 34,222
real time fcis
what makes this successful?

- customer view
- accountability (by service, by owner, by vp)
- actionability
- logging hygiene is as important as fixing real issues
- tactical team to drive down fcis
- real-time – rollback code if fcis introduced
healing the 1,000 cuts
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<tr>
<th>Month</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
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<tbody>
<tr>
<td>January</td>
<td>99.888%</td>
<td>99.986%</td>
<td>99.990%</td>
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<td>February</td>
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<td>December</td>
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- **2016** 99.888%
- **2017** 99.986%
- **2018** 99.990%

Legend:
- Red: < 99.900%
- Orange: >= 99.900%
- Yellow: >= 99.970%
- Green: >= 99.990%
- Gray: No data
results

• systemic fcis reduced by over 95%

• in 2017, we only had one day @ < 99.9% availability – this resulted in ~750k fcis – fewer than almost every day in the first half of 2016

• 31 green (99.99%+) days in 2016; 39 non-green days in 2017

• ~1% lift in revenue in 2017 (>$100m)

• ~$20m annual reduction in call center costs
questions?
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