

RavenPack

In The Time Of COVID-19

Introduction

- Many of you will know us, having seen us here, presenting or just attending most years
- We're a data and analytics company based in Marbella, Spain
- We provide news analytics to large financial institutions; banks, hedge funds, insurance companies etc
- The majority of our data processing is done in Common Lisp

Remote Work

- Almost all of our development happens in our Marbella office
- With the exception of a couple of remote workers
- We've always preferred to have staff in our Marbella office as it's simply easier to communicate with people when you can talk to them face-to-face.
- Lispers tend to work on multiple projects, meaning multiple people to keep up with an, unfortunately, multiple meetings
- Many meetings can be avoided simply by taking a short walk, which by pure office geography, will usually always be in the direction of the coffee machine
- And our biggest internal app's users sit 10m from the Lisp team, which makes support very convenient

Remote Infrastructure

- We have a VPN, and sshuttle for those that prefer such things
- Internal web apps have external endpoints, JIRA, GitLab etc
- Much of our infrastructure is in AWS, so no issue where the developer is
- So it seems that we would be prepared for a sudden everybody-remote event
- But of course the challenges were greater than that, and many specific to our team

Data Volume (1)

- Several of our apps require large amounts of data in memory
- 2 gigs is common, one app can hit 10+ while running
- Startup in the office where our dev DBs are can take 20 to 30 minutes. Time that with a meeting or a chat elsewhere and it's reasonable
- Most of that is simply database queries and data transfer, locally
- And if you're trying to run stuff at home, via VPN, things slow down significantly. Over an hour in some cases
- Years ago I made an experimental addition to our 'with-db-query macro, part of our Oracle library. I never took it to full functionality. It was simply the ability to cache the results of any query on local disk
- Our normally-remote colleagues had recently improved and filled in the missing functionality. You can even cache with readable Lisp, FASLs or Rucksack.
- A remote worker with cached data can now restart faster than someone in the office using the DBs

Data Volume (2)

- Most of our input data are news stories or other similar content from various providers
- Usually stored in S3, so nowhere near the office or most developers
- People have started to cache those too
- Bulk test runs etc are also much faster
- Of course when you start caching data you have to start worrying about cache size and age
- This data is changing daily. So care is required
- There's a pattern here. Make yourself independent of distant resources where possible, and with care

Pre-building Images (1)

- We have no functional need to pre-build images. Our applications are not distributed to customers
- But despite caching etc, home workers still want fast restarts when things go wrong
- Having access to an image containing the latest code and data built that same morning and ready to start can make a huge difference
- We're now building images daily, sometimes more often. Some are for internal application use. Others only for development
- And with builds comes the opportunity to improve our testing infrastructure as things are now faster and repeatable
- Its important to note that these images are for dev use, and so must have access to all resources and have removed nothing. No tree-shaking here. They are also very large.

Prebuilding Images (2)

- Our images are saved for dev and we also use them for our internal production applications
- We have to make sure that all of the configuration options we'd normally have can be changed on a pre-built image and still have effect. So no config trapped in closures. Everything is set up to refresh config at run time
- So they may be built and load data from one DB, but continue from another
- We have a data loading abstraction that stops accidental reload of the same resources
- This means that things like DB resource pools are shut down but not destroyed and that they can be reactivated, often with different configuration.
- Everything must be zeroed out
- Source file location is standardised and configurable so that systems can be loaded as if we were on the original build machine
- Our dev DBs and others are available from practically anywhere within our network, so dev work can be done from the office, from AWS or from a developer's home

Image Management

- We used to run everything from source under Emacs
- So it made sense that auto-restarting dev apps would be done by an Emacs script. Nowadays more like an overgrown library of app-specific restart instructions.
- The next step was to take our now prebuilt images and, embedding them in Docker containers, have a container management app do our deployment
- On paper this is a lot more flexible and easily programmed, but we're now slaves to yet more technology that we don't control. Ups and downs you might say
- Of course our Lisp-containing Docker containers are also set up so that the image inside can access source via appropriate mounts
- And you can connect to these lisps via Slime or Sly

Non-Lisp concerns

- Zoom has been the most reliable video chat app for meetings
- People are starting to get creative with the green screen effects
- We tried others but there was always a problem, be-it poor quality of poor interface.
- Code reviews are done via screen, tmux, or where there are multiple reviewers, TMate.
- For myself at least, video calls have now become the norm. I'm not feeling the slight discomfort that I used to now that it's a way of life for everyone

What Are We Up To?

- Actual work has continued as normal
- But given the circumstances and the data at our disposal we've ended up creating a little free COVID-19 news tracking app
- <https://coronavirus.ravenpack.com>

Coronavirus News Monitor
https://coronavirus.ravenpack.com
RavenPack [Share](#)

Selected Region

Worldwide

COVID-19 Cases

Total Cases **2,863,788** +1.8%

Total Recovered **814,758** +2.6%

Total Deaths **199,553** +1.2%

Changes since midnight UTC

Panic Index

4.38 +0.36%

The % of news about panic and the Coronavirus

Media Hype Index

54.74 +1.96%

The % of total news about the Coronavirus

Fake News Index

1.02 +0.06%

The % of news that links the Coronavirus to fake news

Worldwide Sentiment Index

-39.12 +0.51

The level of sentiment from all news about the Coronavirus

Contagion Index

62.98 -2.29%

The % of entities in the news linked to the coronavirus

Media Coverage Index

77.69 -2.84%

The % of all news sources covering the Coronavirus

Geographical Exposure

Confirmed Cases Sentiment Media Exposure

Shows the geographical impact of COVID-19

Media Exposure to Coronavirus

Country	Politicians	Treatments	Airlines	Food & Beverages
1 United States	-3.6	+4.28%	74.76	+0.09%
2 UK	0.67	+14.25%	18.52	-0.75%
3 Canada	-3.88	+8.5%	15.63	-0.67%
4 India	-66.56	-2.87%	13.98	+0.94%
5 China	-26	+22.81%	12.79	-1.87%
6 France	-27.06	-13.94%	8.37	+0.13%
7 Germany	-40.96	+6.25%	7.16	-1.17%
8 Italy	-25.62	+0.71%	6.08	+0.52%
9 Japan	-39.38	+5.61%	6.05	-2.53%
10 Australia	-16	-0.13%	5.57	-1.62%
11 Spain	-35.41	+8.03%	5.46	+0.69%
12 S. Korea	-49.78	+5.4%	3.47	-0.72%
13 Switzerland	-7.91	-4.11%	3.41	-0.09%
14 Netherlands	2.33	+6.09%	3.23	+0.02%
15 Russia	-26.33	-6.71%	3.2	-0.31%
16 South Africa	-40.2	+12.01%	2.65	-0.37%
17 Belgium	-18.21	-7%	2.58	+0.71%
18 Georgia	-6.36	+1.42%	2.42	+0.65%
19 Brazil	-31.3	-6.09%	2.23	-0.06%
20 Mexico	-16.49	-5.1%	2.18	-0.15%
21 Pakistan	-35.22	+1.12%	1.97	+0.34%

The table shows the media exposure of COVID-19 by entities

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News Flashes

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COVID-19: U.S. death toll tops 51,000, over a quarter of the world's fatalities

A minute ago | [Business Wire](#)
CORRECTING and REPLACING New Study Finds HealthySole UVC Technology Deactivates Human Coronavirus on Footwear

2 minutes ago | [Yahoo! News](#)
India and Pakistan ease coronavirus restrictions for some small businesses

2 minutes ago | [TAPinto.net](#)
Coral Springs City Manager Shares Message Regarding Efforts During Coronavirus

Related Topics

RELATED TOPIC	RATIO (%)	1D CHG
1 Social Distancing	17.57	+2.68%
2 Fear	11.81	+1.36%
3 Stay at Home	10.54	+0.68%
4 Confirmed Cases	9.04	+1.71%
5 Test Positive	8.98	+2.08%
6 Panic	8	+0.38%
7 Layoffs	7.06	+1.36%
8 Vaccine	6.17	+0.37%
9 War	5.7	+1.35%
10 Face Mask	5.38	+0.84%
11 Mental Health	4.37	+0.12%
12 Fines	3.88	+0.54%
13 Anger	3.42	-0.01%
14 Charity	3.27	+0.48%
15 Death Toll Climbing	3.2	+1.05%
16 Crude Oil	3.19	-1.29%
17 Recession	3.05	-0.61%
18 Furloughs	2.85	-0.12%
19 Clinical Trials	2.58	-0.5%
20 Guns & Ammo	2.53	+0.29%

The top themes related to COVID-19

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Sources: RavenPack, Johns Hopkins University (CSSE), Worldometer

Yes, Not Lisp

- Uses JS and React
- Data is pre-prepared by the backend
- Is mostly RavenPack data with the addition of some official stats
- For a change I can show my mum what I do

And So?

- Working remotely isn't so bad
- But I'd prefer to be in the office
- Our infrastructure has been reliable
- And recent work has made things acceptably fast
- So things are more or less normal
- Ask my dogs if you want a second opinion about being stuck in the house

Fin

We are not hiring

Until things are back to normal

Hopefully sooner than later