



Swarm: синхронизируем рой устройств

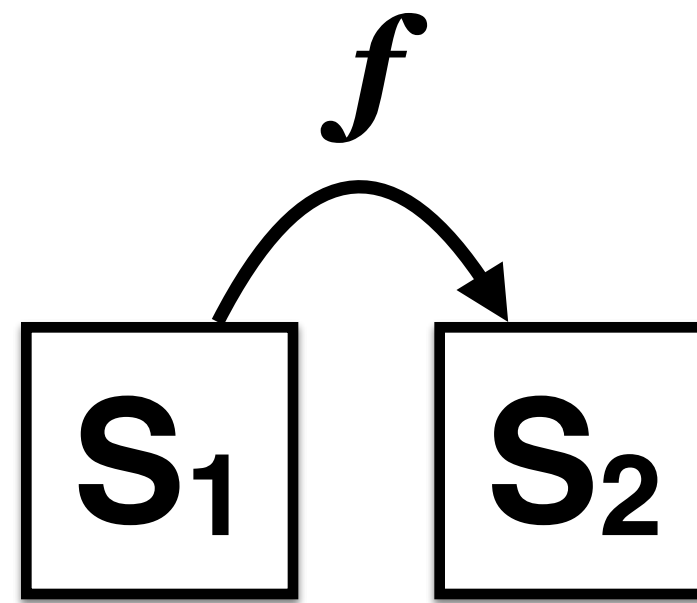
Грищенко Виктор HolyJS, СПб, 5 июня 2016

Синхронизация



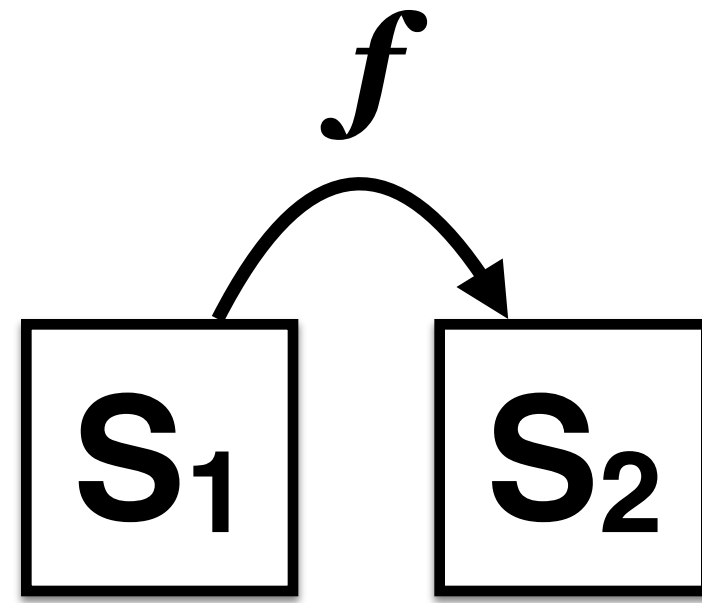
??!

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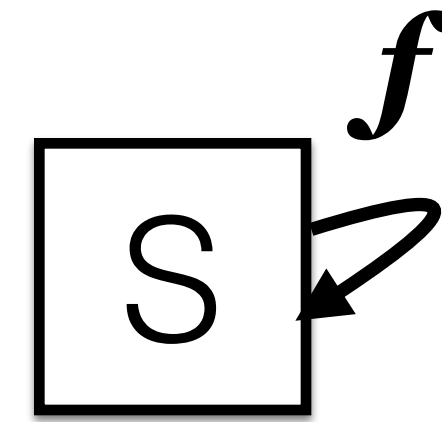


Redux

??!

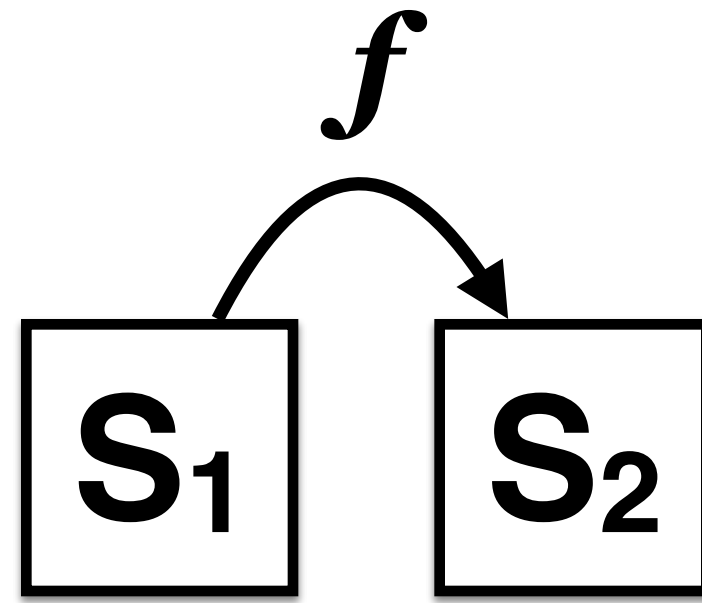


Redux

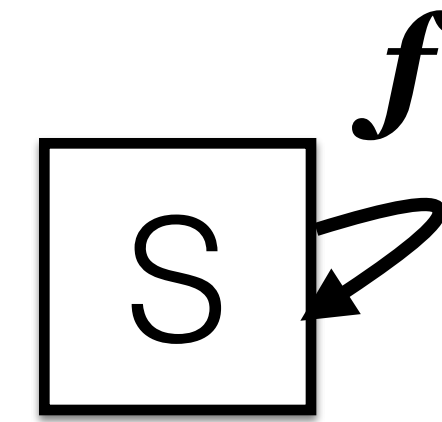


OOP

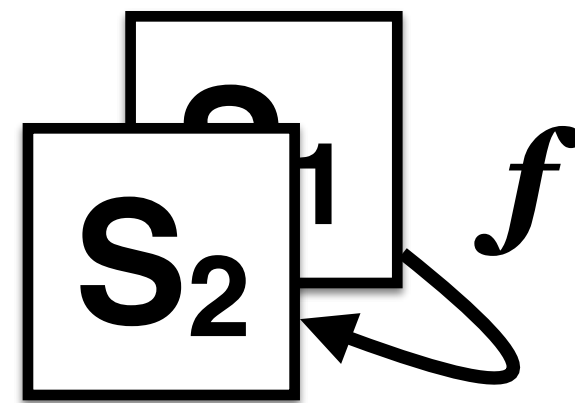
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Redux

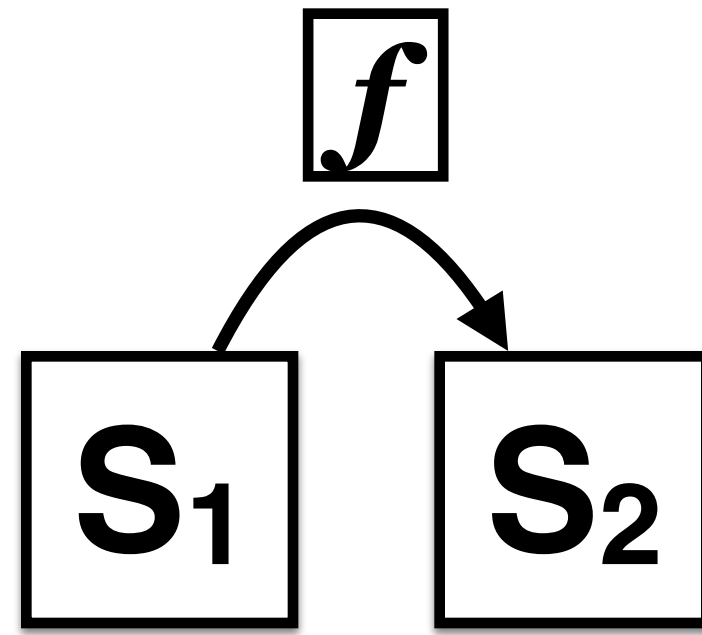


OOP

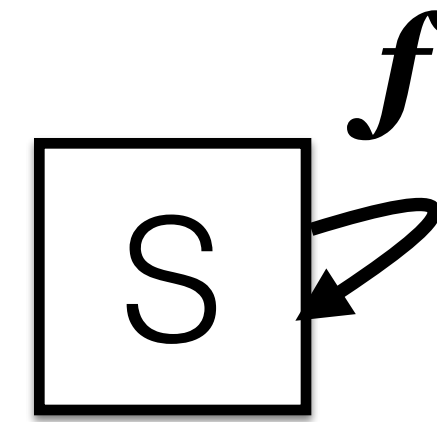


MVCC

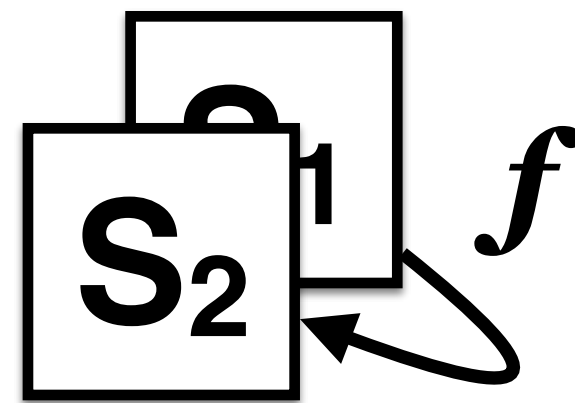
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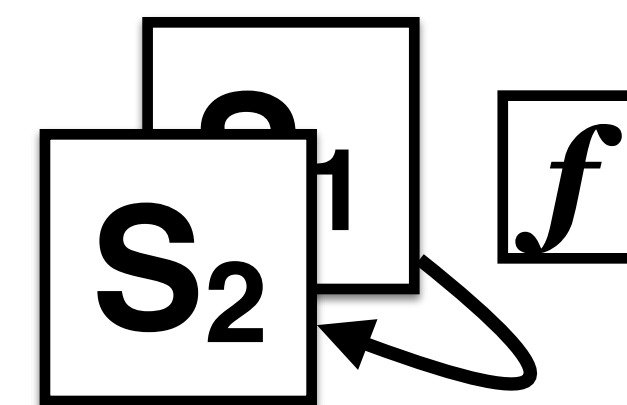
Redux



OOP

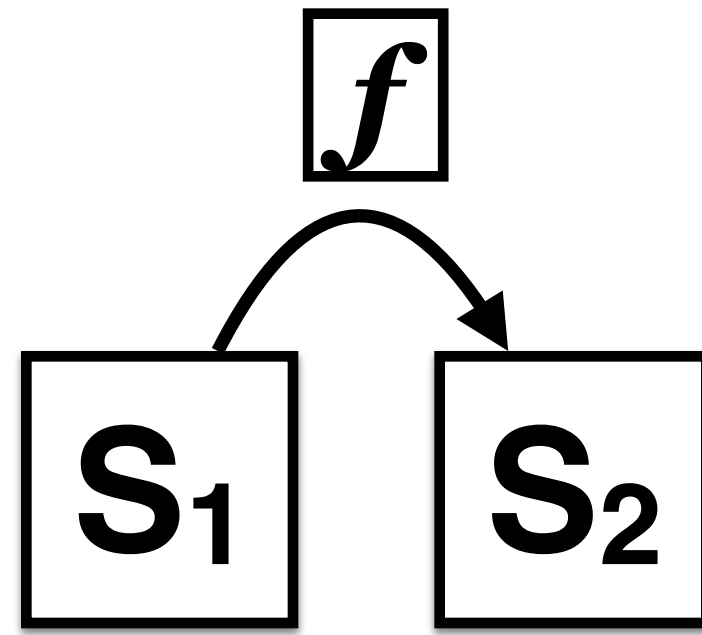


MVCC

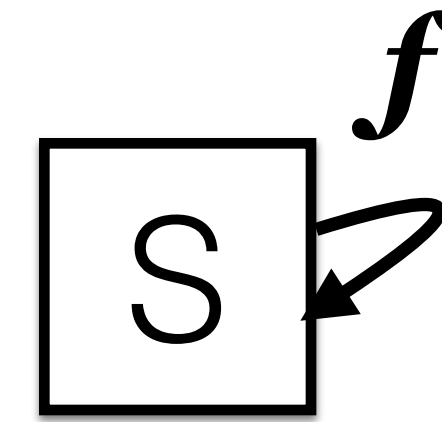


SMR

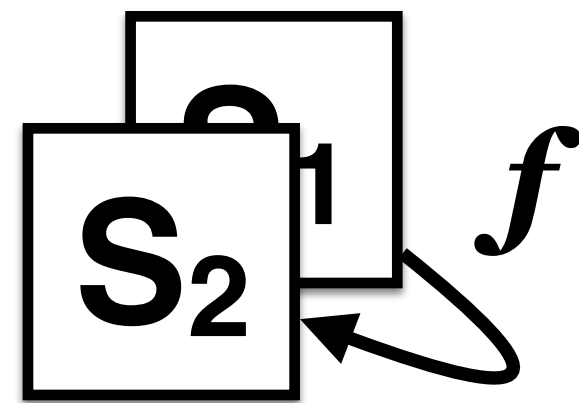
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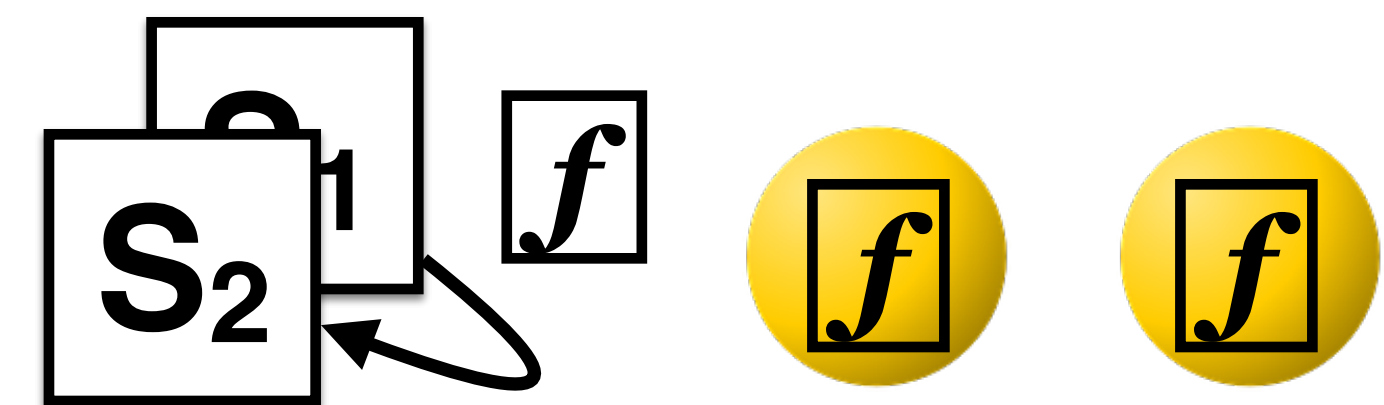
Redux



OOP

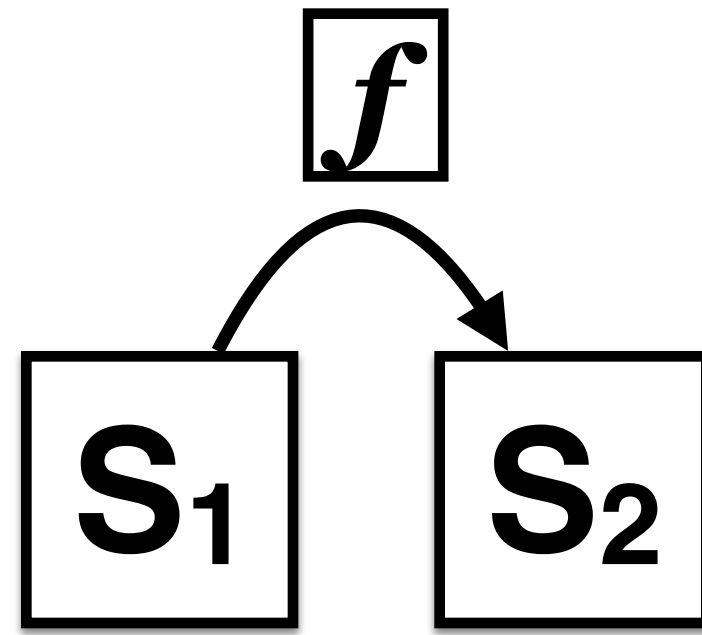


MVCC

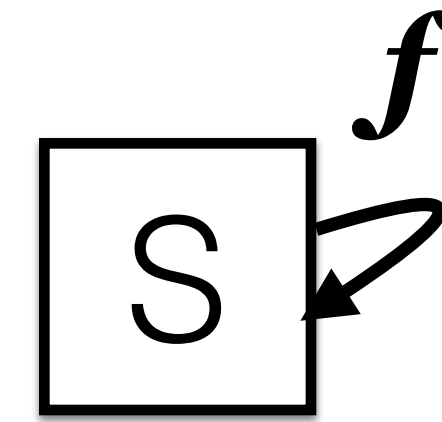


SMR

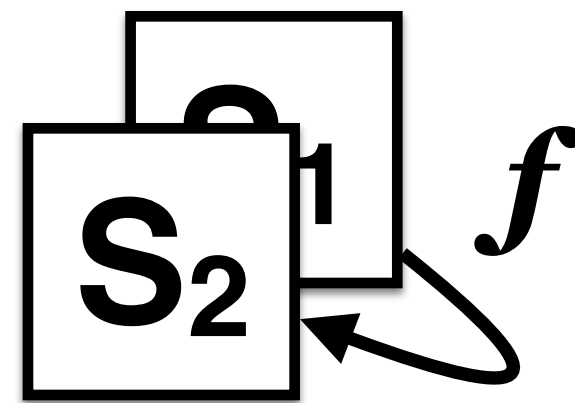
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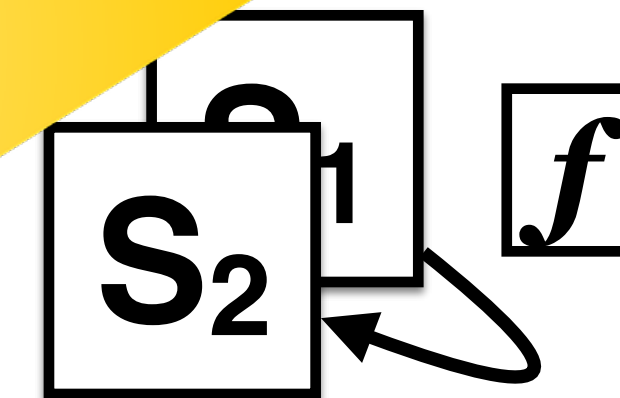
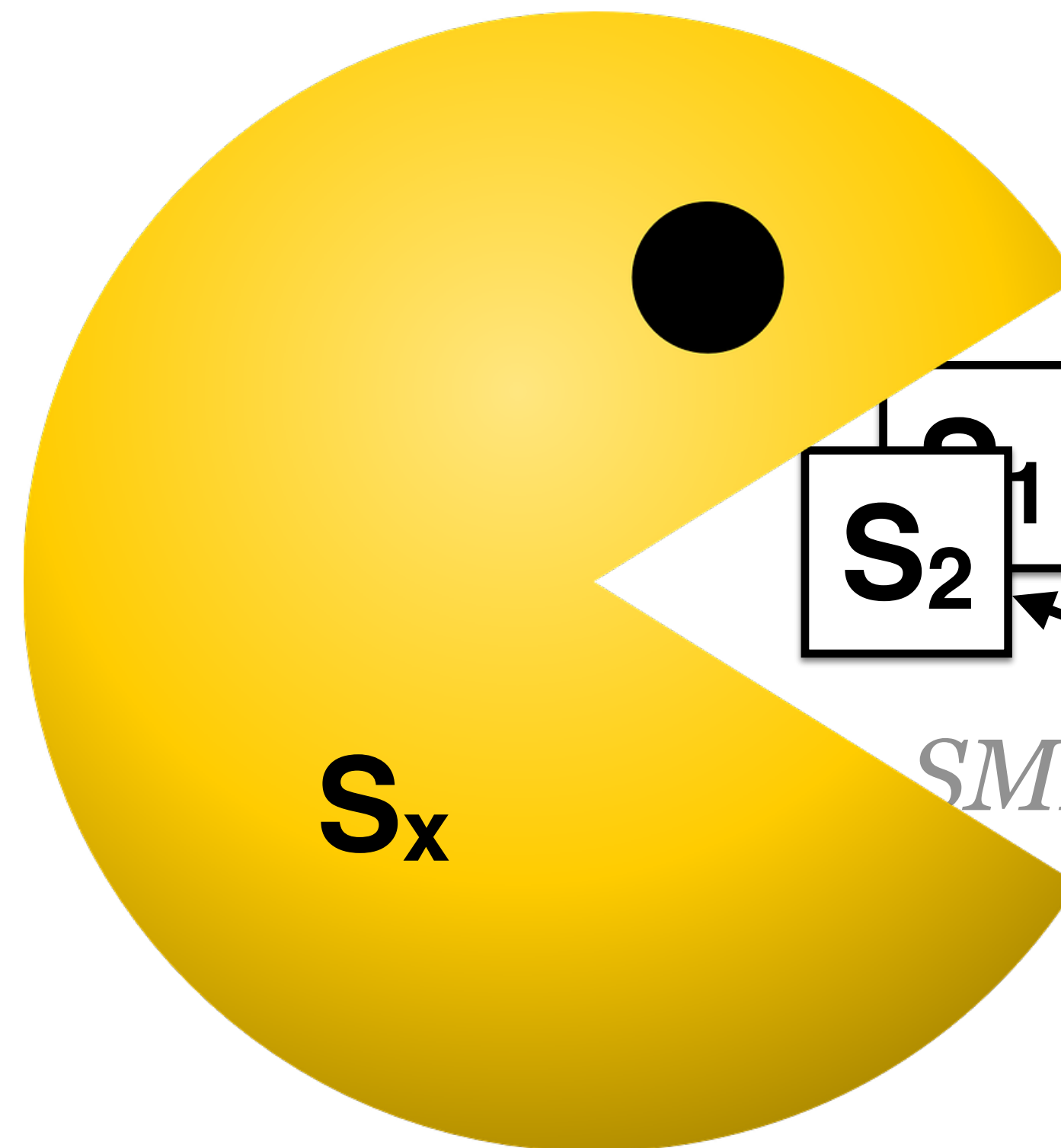
Redux



OOP



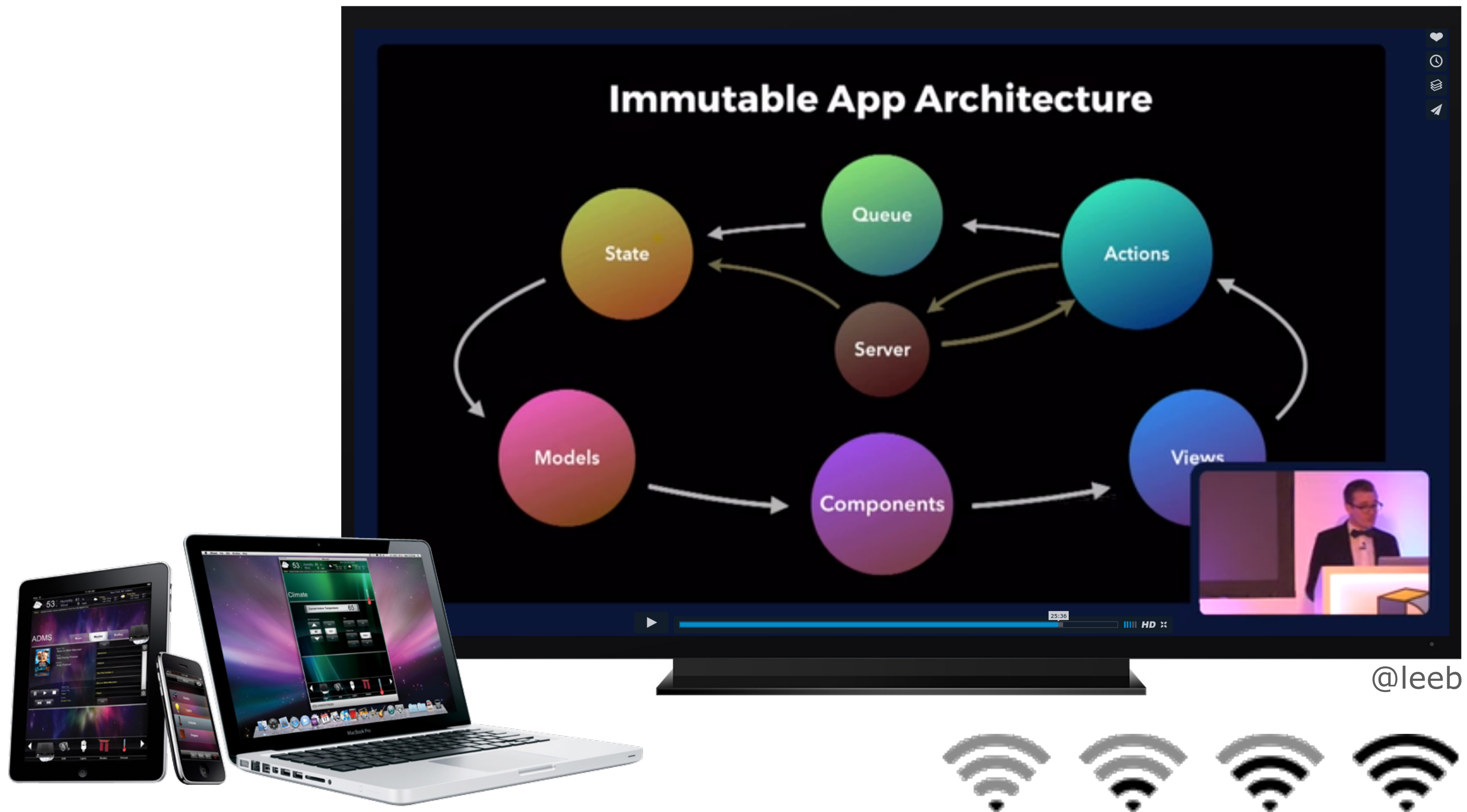
MVCC



SMR

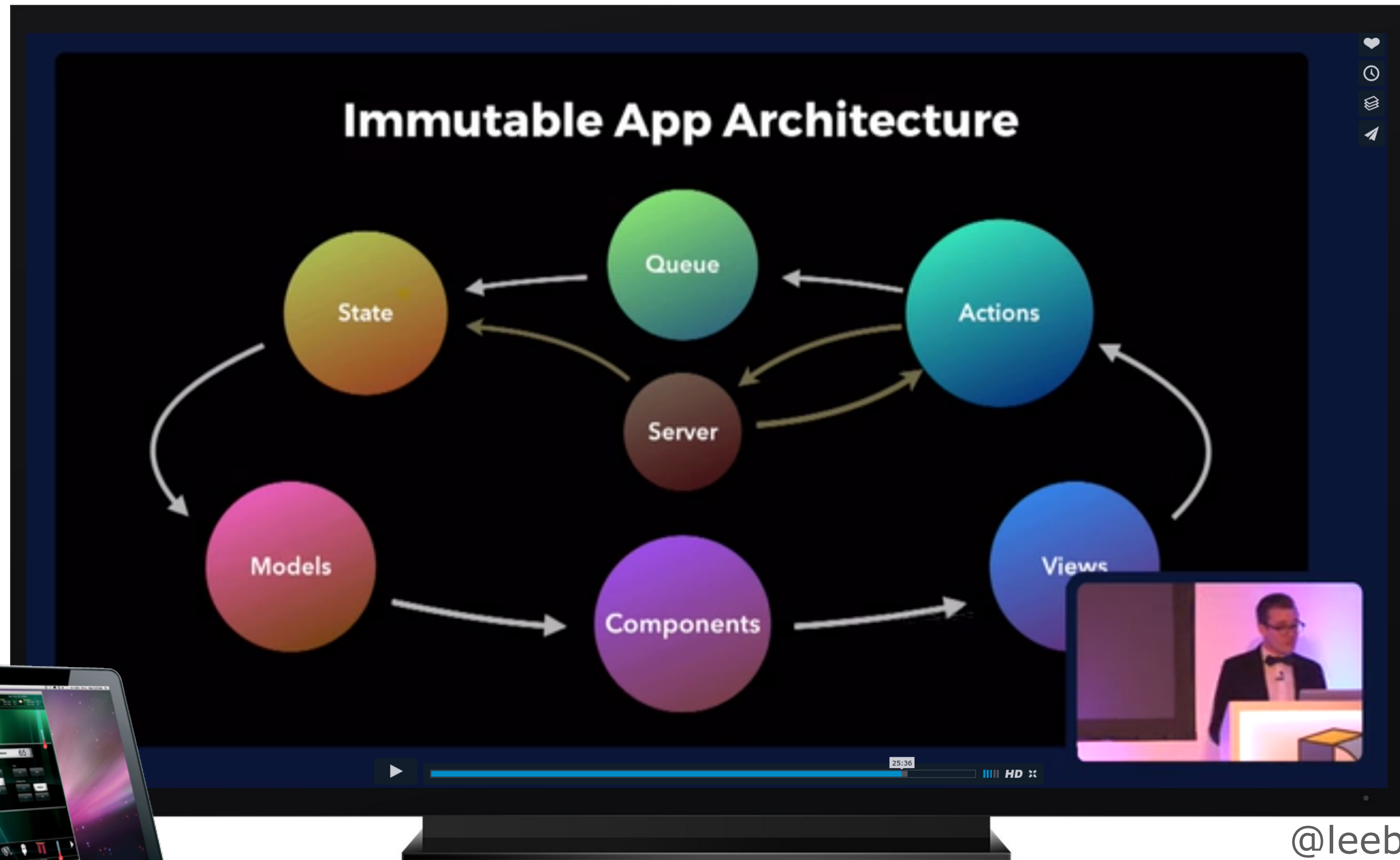


Синхронизация



Синхронизация

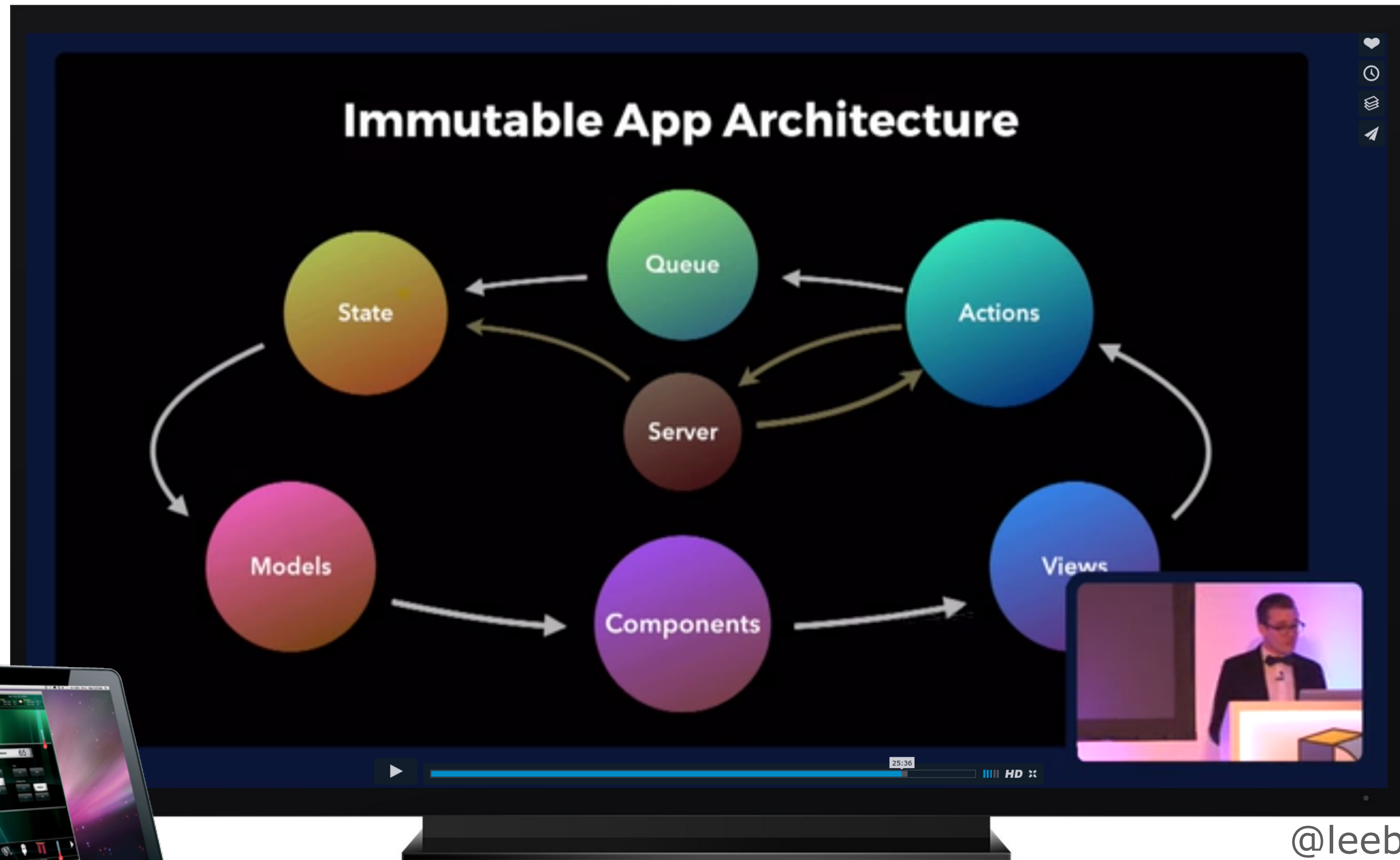
✓ *State*



Синхронизация

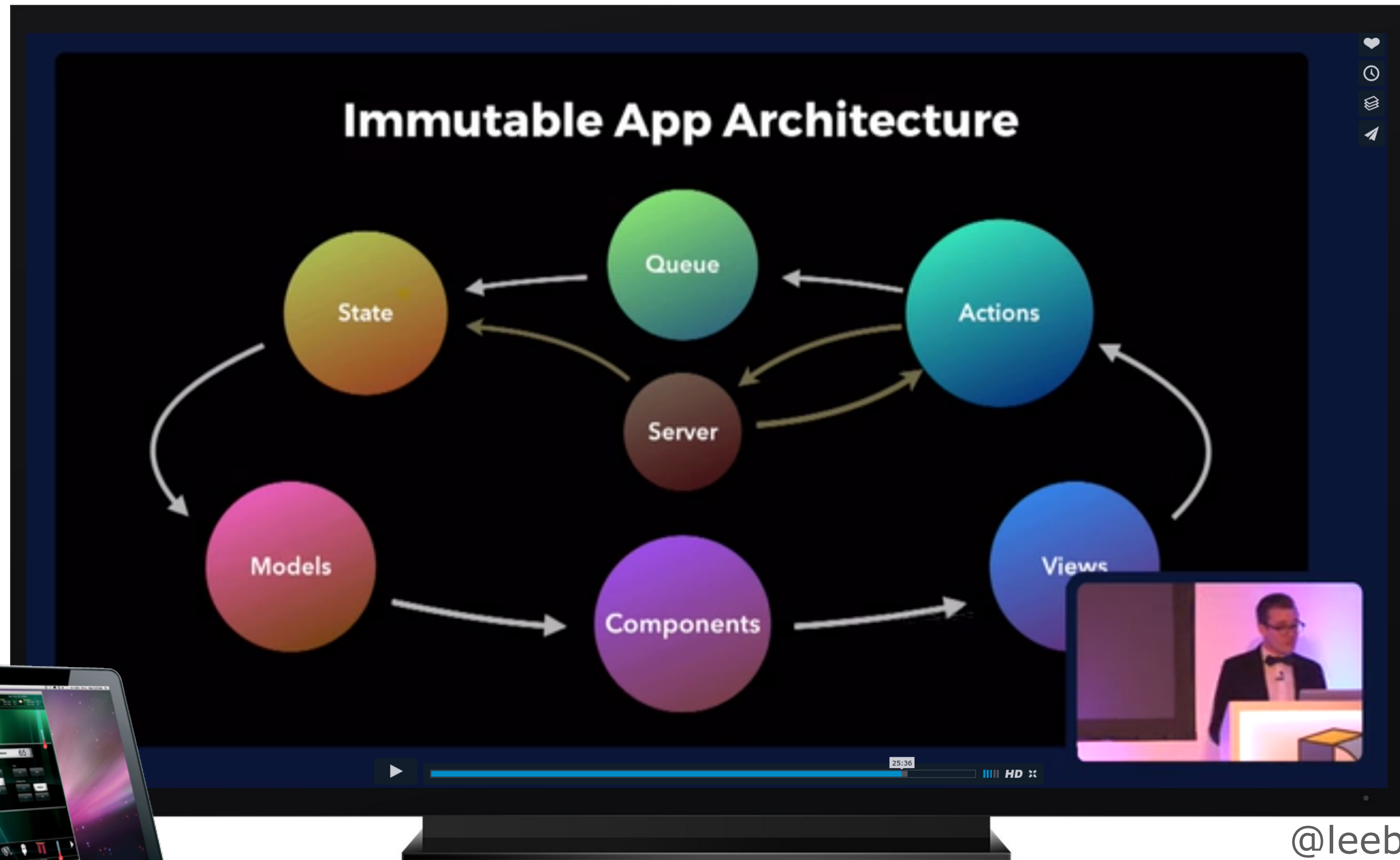
✓ *State*

✓ *Inputs*



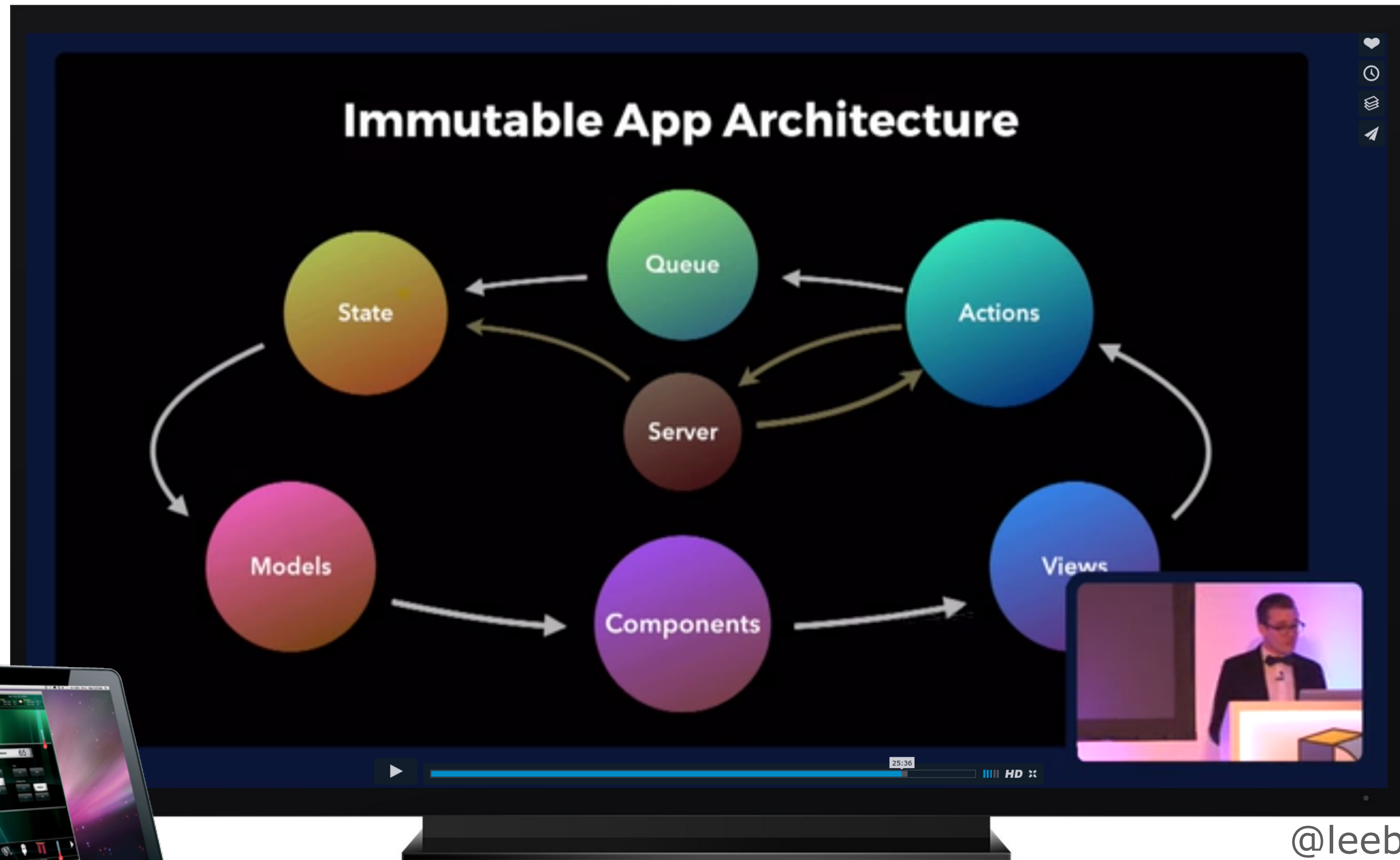
Синхронизация

- ✓ *State*
- ✓ *Inputs*
- ✓ *Versions*



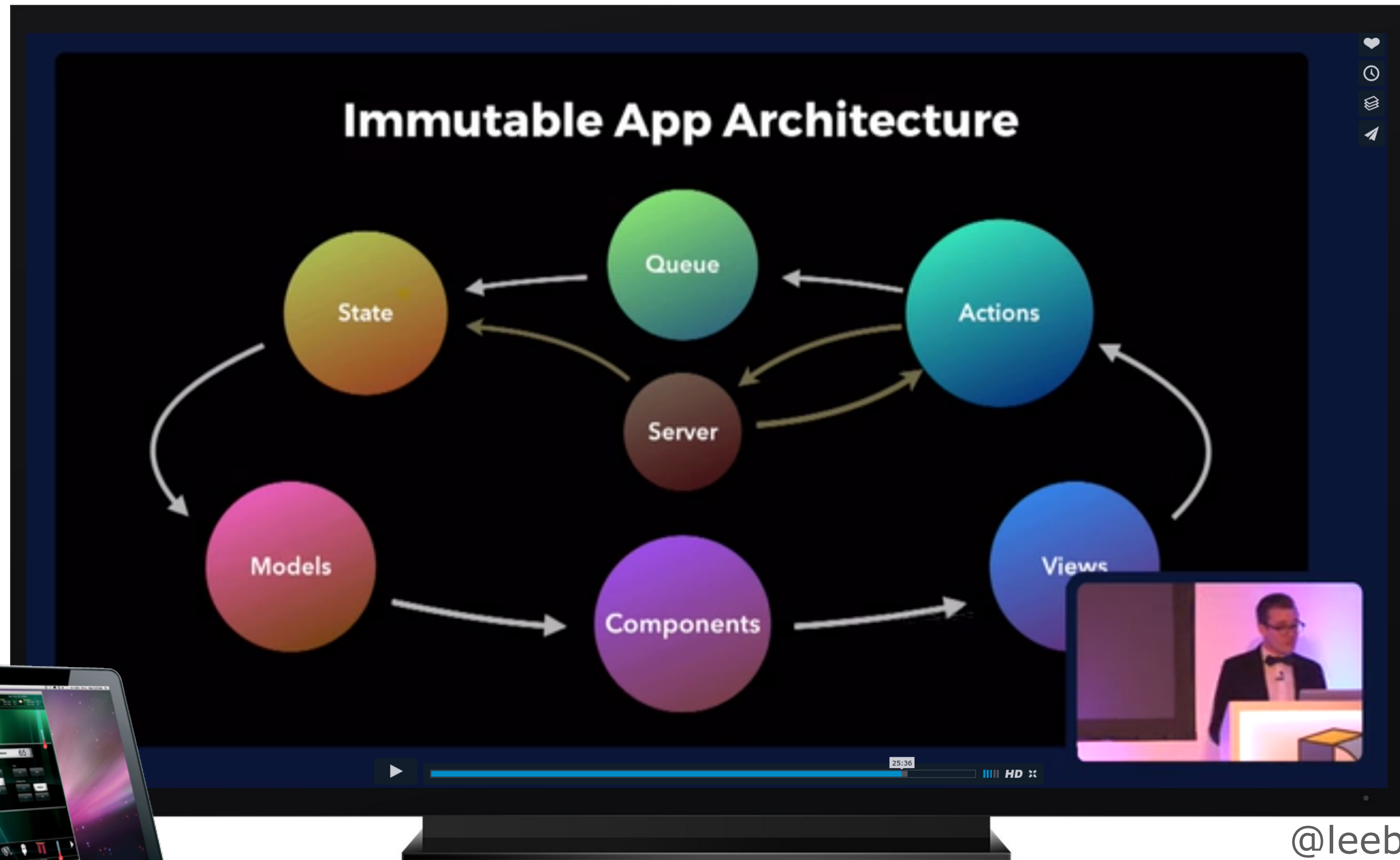
Синхронизация

- ✓ ***State***
- ✓ ***Inputs***
- ✓ ***Versions***
- ✓ ***QL***



Синхронизация

- ✓ *State*
- ✓ *Inputs*
- ✓ *Versions*
- ✓ *QL*
- ✓ *Sync*



About 215,000 results (0.49 seconds)

[mac] I'm losing faith in Evernote..FAST. LOST NOTES. AGAIN

<https://discussion.evernote.com/.../35368-im-losing-faith-in-evernotefast-...> ▾

Feb 26, 2013 - This is the 3rd time now that I lost notes! ... I have had too many experiences over the years with **data loss** (lost files, broken drives, corrupted ...

How to recover missing notes – Evernote Help & Learning

<https://help.evernote.com/hc/.../208314448-How-to-recover-missing-not...> ▾

Select 'Report **data loss**' in the 'What can we help with?' field on the support ticket form; Specify the device you were using when the **data loss** occurred; Enter a ...

[mac] Lost data - support for non-premium members - Mac ...

<https://discussion.evernote.com/.../28061-lost-data-support-for-non-prem...> ▾

Jul 30, 2012 - Hi,I **lost** all of the data in a long note that I had. I use **Evernote** prima on my Iphone, but I also access it occasionally from my Macbook.

How And Why You Should Backup Evernote | cloudHQ Blog

blog.cloudhq.net/how-and-why-you-should-backup-evernote/ ▾

However, user error is the leading cause of **data loss**- and **Evernote** cannot help you in that case. But you can help yourself- you just need to backup **Evernote**.

Thousands of Evernote users affected by data loss - CNET

www.cnet.com › Tech Culture ▾

Aug 9, 2010 - Online note-saving service **Evernote** on Monday acknowledged that it had suffered a hardware fault at the beginning of July that resulted in ...

As a paying user for years, I've had Evernote lose data many ...

<https://news.ycombinator.com/item?id=7010558> ▾

Evernote is some of the very worst software that has ever survived more than a few ... Horrible show-stopping crash/**data loss** bugs are the norm, and have been ...

Back Up Your Evernote Notebooks (and Keep That ...

lifehacker.com/back-up-your-evernote-notebooks-and-keep-that-import... ▾

May 26, 2013 - This may seem pretty paranoid, but if you're like me, you'd be completely **lost** if your **Evernote** data went kaput. It's not that much work to create ...

Is Your Data Safe in Evernote? - Michael Hyatt

michaelhyatt.com/is-your-data-safe-in-evernote.html ▾

Jun 2, 2011 - **Evernote** data is stored both locally and in the cloud. I personally have very little worry about security or **data loss** based on ...

Sun, Apr 17 - Social Media Marketing World, San Diego, CA

Evernote, the bug-ridden elephant | jasonkincaid.net

<https://jasonkincaid.net/2014/01/evernote-the-bug-ridden-elephant/> ▾

More than any other technology, **Evernote** is part of me, having evolved from Maybe they're trained that way, or maybe **data loss** on **Evernote** isn't as rare as ...

If you are storing important info in Evernote, think twice ...

www.gigpeppers.com/if-you-are-storing-important-info-in-evernote-thin... ▾

Feb 21, 2015 - You see, I used to be a note app to just backup. ... I **lost** more than a year of OneNote notes. I used **Evernote** about 5 years ago.

AD-HOC

Page 10 of about 215,000 results (0.54 seconds)

30 Ways Evernote Can Improve Your Life | One App to Rule ...

www.artofmanliness.com/.../one-app-to-rule-them-all-30-ways-to-use-ev... ▾

Feb 12, 2014 - **Evernote** is an excellent, free tool that people can use to organize their lives ... and we immediately look it up, and then we're **lost** in the rabbit hole of the In the event of a security breach, all of your data would potentially be ...

Why I Dumped Evernote for OneNote – Matt Copeland

mattcope.land/why-i-dumped-evernote-for-onenote/ ▾

Jun 21, 2015 - **Data loss**. **Evernote**, the elephant that never forgets, started forgetting some of my tags. While the tags themselves aren't essential, trusting the ...

Evernote 5 for Mac beta is now available, offers 100+ new fea...

www.slashgear.com/evernote-5-for-mac-beta-is-now-available-offers-10... ▾

Nov 1, 2012 - A few days ago, **Evernote** announced the upcoming beta release for **Evernote** 5 ... These can range from corruption of your notes to **data loss**.

Evernote Is Still Growing Like A Weed, Hits 4 Million Users ...

techcrunch.com/2010/08/17/evernote-4-million/ ▾

Aug 17, 2010 - **Evernote**, the 'memory enhancement' service that allows one to capture, it seems odd not to have mentioned the recent **data loss** (covered by ...

Best Way To Migrate From Evernote To Microsoft OneNote ...

www.nextofwindows.com/best-way-to-migrate-from-evernote-to-micros... ▾

Aug 4, 2014 - This move by Microsoft is a major challenge to **Evernote**. ... you can live with that, the gain of switching to OneNote will be greater than the **loss**.

Evernote 5 beta for Windows brings new interface and ...

gadgets.ndtv.com › Apps › Apps News ▾

Jul 19, 2013 - **Evernote** has released an updated app for Windows that brings a new ... experience various issues and possibly even **data loss**, though such ...

My 10 Tips and Tricks for Using Evernote - Bettnet.com

bett.to/UjVEVX ▾

Feb 9, 2014 - It's no secret that I'm a big fan of **Evernote**, the web service with mobile and ... out/ disable your account for some spurious reason/experience **data loss**, etc., ... The contacts also end up in your main **Evernote** database in a ...

business explained - Key Reasons Why Evernote ...

are.net/.../evernote-business-explained-key-reasons-why-eve... ▾

Aug 28, 2014 - **Evernote** has been successful by making this data instantly available eliminating the risk of a **data loss** due to backup media loss in transit.

Using Postach.io to blog with Evernote - Bright Ideas - Global2

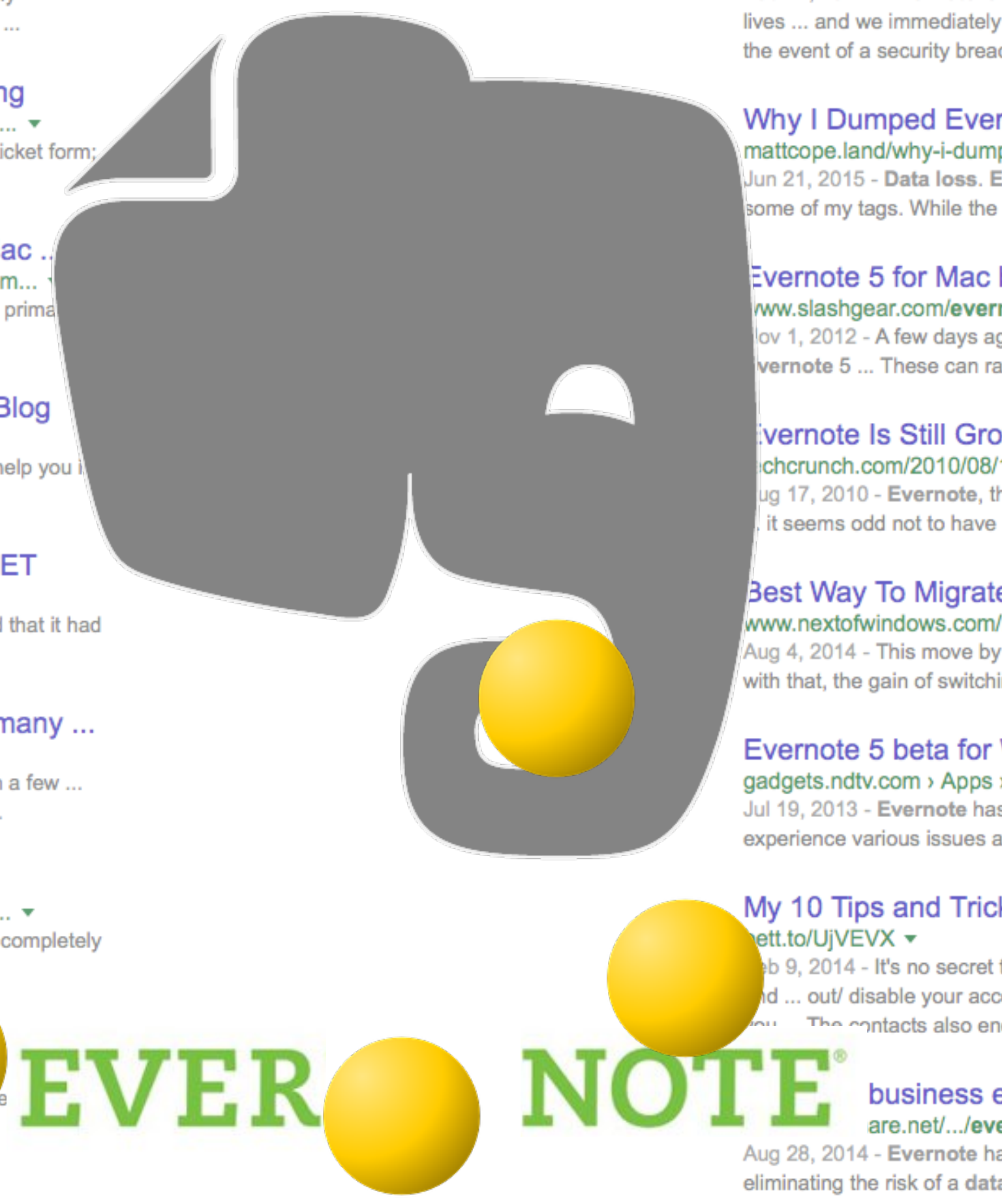
slav.global2.vic.edu.au/2013/07/.../using-postachio-to-blog-with-evernot... ▾

Jul 24, 2013 - Postach.io works by connecting with your **Evernote** and creating a blog from ... which syncs back to your computer, reduces the risk of **data loss**.

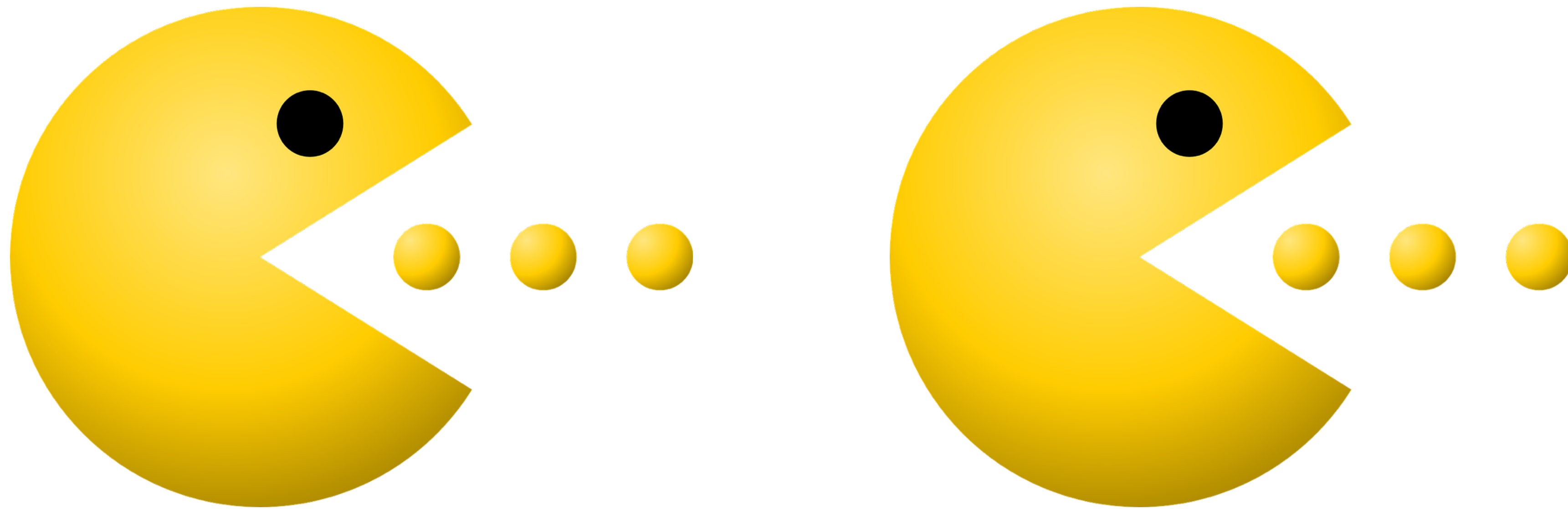
Do you allow your employees to use Evernote? | IDG Answers

www.idganswers.com/.../do-you-allow-your-employees-to-use-evernote... ▾

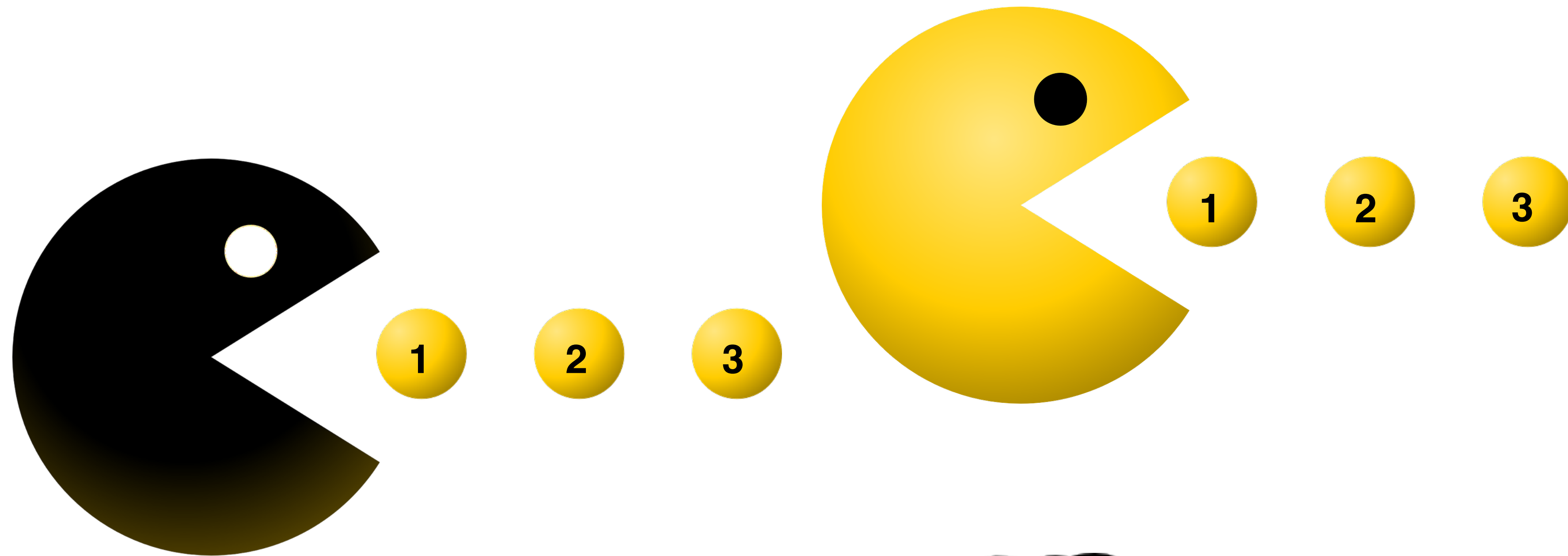
Jun 21, 2012 - I personally really, really like **Evernote** and use it daily to keep track of ... the usefulness of **Evernote** as a tool outweighs the risk of **data loss**.



STATE MACHINE REPLICATION



MASTER-SLAVE



{"type":"request","status":200,"headers":{"server":"nginx","x-request-id":"fb81db48-0f63-47a4-81b5-711dcb34bac4-6467"},"cache-control":"max-ag...	367	10:27:47.697
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☒ xhr?data=false&seq=...

☐ de78557db2e00586e...

☐ xhr?data=false&seq=...

30 requests | 119 KB tr...

SCMP

HEADER [18,[22,[0,2],[21,"CE9C0C2B-389D-4742-9F51-2B3484EC667C"],false,null,"0EC08684-D6D6-4220-855D-7C293475321C",false,null,-1,-1,null]]

COMMAND [[{"DF1A4AEC-852C-40CF-86BD-0A00-473728E-4731-4630-B190-26D82B6AD5F1",0,[18,[358,[],false,false,[9],"B7313A93-B414-4325-ABFF-FA7F581253FC/9803FC9F-9880-4A0F-A4DC-F894FD805F44/B549A74E-537A-44C6-A4CE-1825F1559F38/1C70A1F2-13D7-45A5-BAD4-D43938F4DD90",null,[9,[350,[],8,0]],"!","en",[9]]}]

END

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{"type":"health","headers":{"x-client-id":"498d3ffc44ddfa2f275b","x-client-request-id":"8d70f0a0-8d4e-49ee-bb57-6453-6be88f6e"}}	128	10:28:46.305
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▼ Form Data

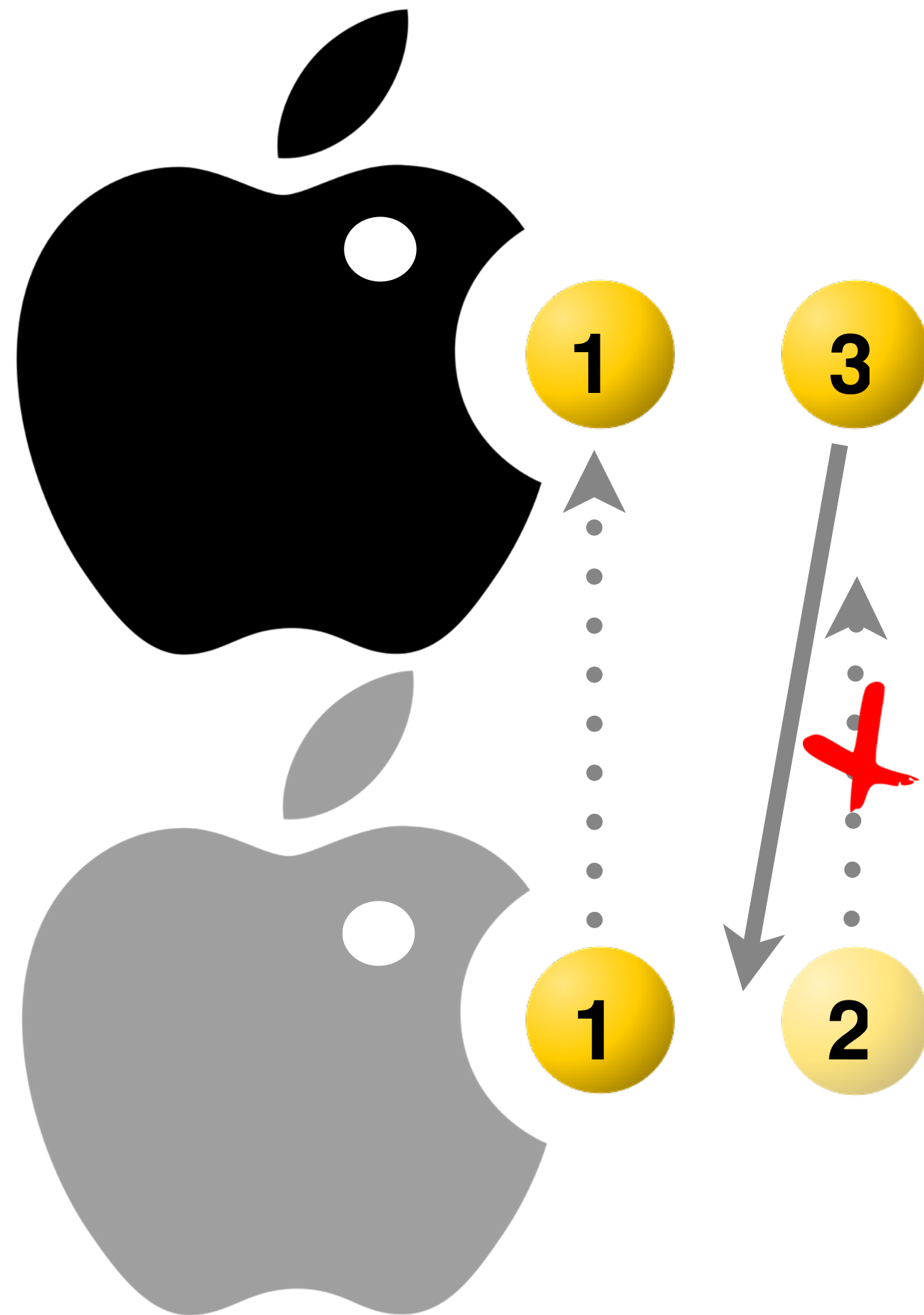
rev: 557

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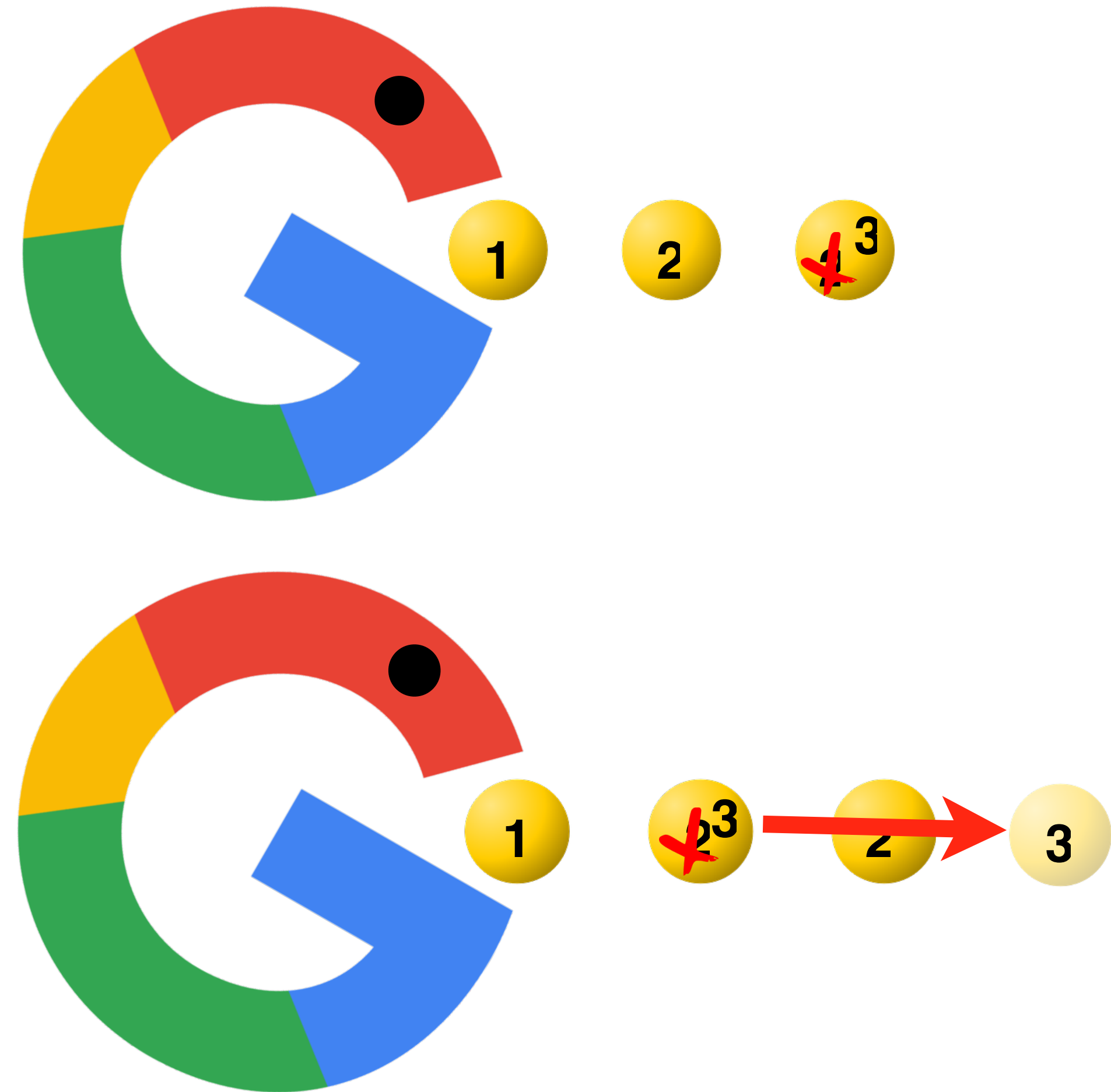
Syncable optimizations:	Alexey Balandin <aleksisha@gmail.com>	2014-10-03 13:43:45
disable coverage generation (it's unstable)	Alexey Balandin <aleksisha@gmail.com>	2014-10-03 13:43:45
Merge pull request #30 from abalandin/master	Victor Grishchenko <victor.grishchenko@gmail.com>	2014-10-22 06:43:10
fix Host.close(): check storage is defined before closing it	Alexey Balandin <aleksisha@gmail.com>	2014-10-03 13:43:45
Merge pull request #27 from abalandin/master	Victor Grishchenko <victor.grishchenko@gmail.com>	2014-10-21 18:30:34
increase tests "maxBlockDuration" upto 10sec;	Alexey Balandin <aleksisha@gmail.com>	2014-10-21 17:35:06
tests for Vector onObjectEvent/offObjectEvent/onObjectStateReady;	Alexey Balandin <aleksisha@gmail.com>	2014-10-21 16:54:05
fix Makefile tasks dependencies	Alexey Balandin <aleksisha@gmail.com>	2014-10-20 17:47:14
add .filter() to Set & Vector; optimize	Alexey Balandin <aleksisha@gmail.com>	2014-10-21 14:16:32
mixins support in Syncable.extend();	Alexey Balandin <aleksisha@gmail.com>	2014-10-21 13:54:04
a bit more readable README	Victor Grishchenko <victor.grishchenko@gmail.com>	2014-10-23 06:57:50
less deps: no rimraf	Victor Grishchenko <victor.grishchenko@gmail.com>	2014-10-22 20:18:26
Merge branch 'separate-example' of git://github.com/abalandin/swarm into abalar	Victor Grishchenko <victor.grishchenko@gmail.com>	2014-10-21 10:17:30

ВЕРСИИ!!!

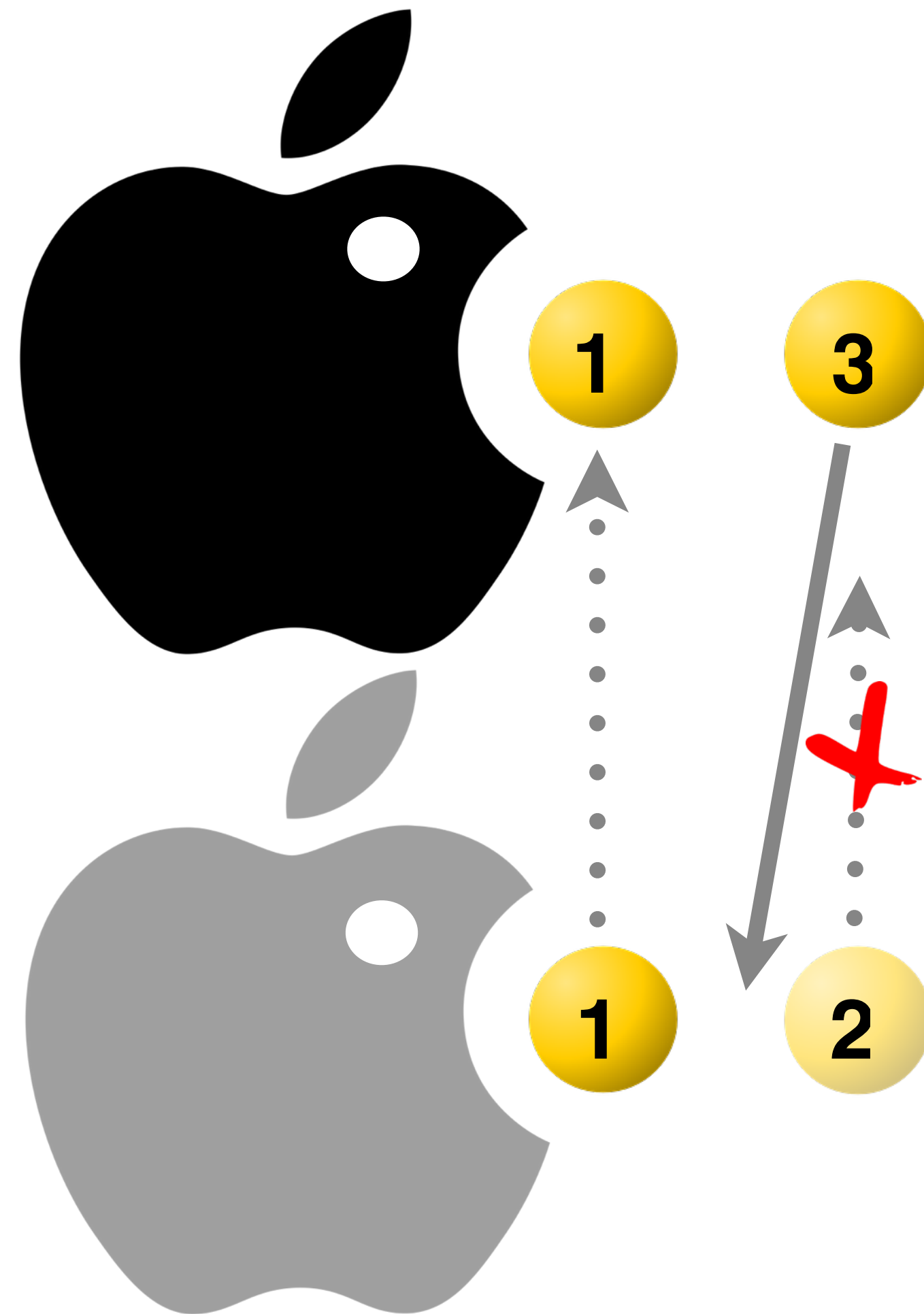
PATCH-BASED



OT

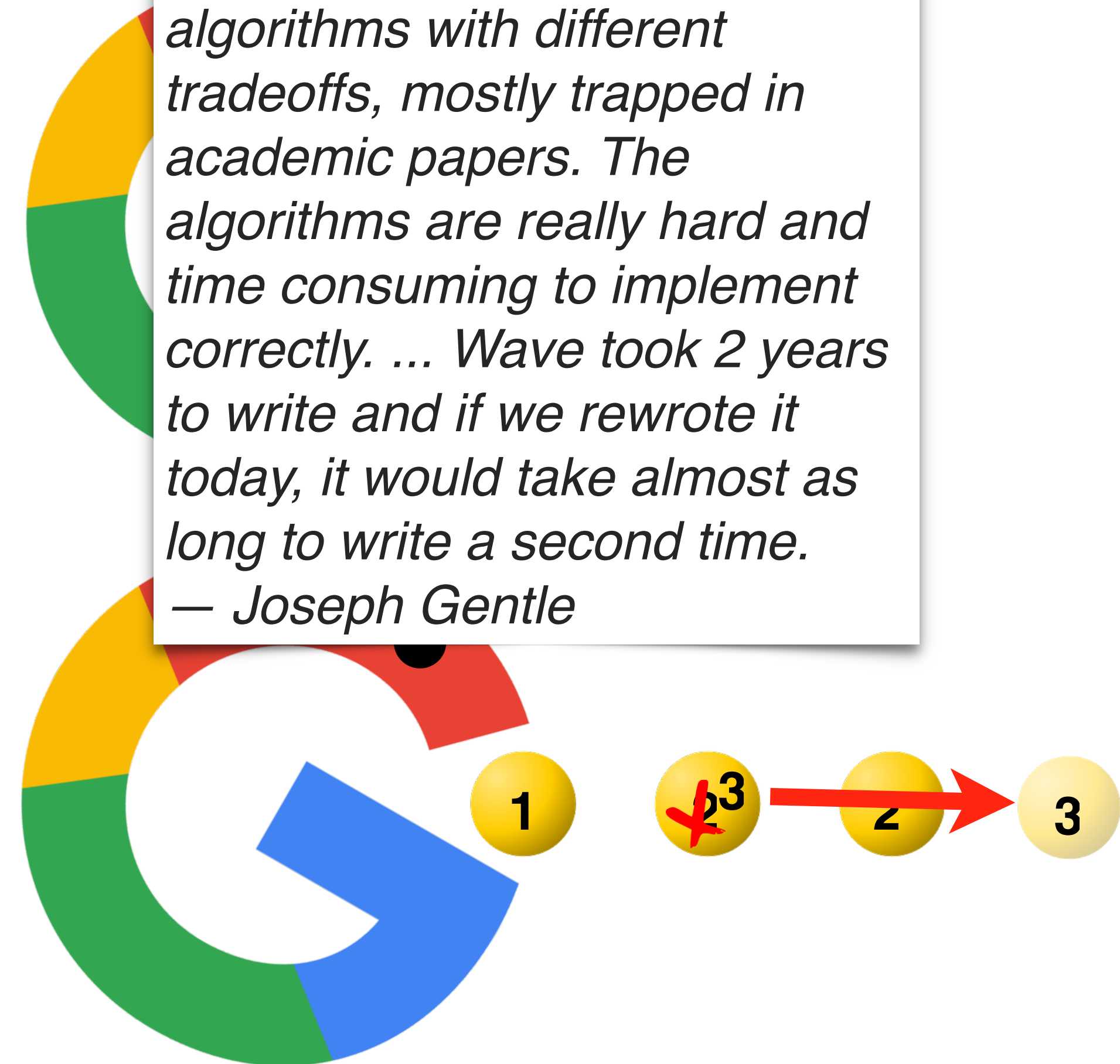


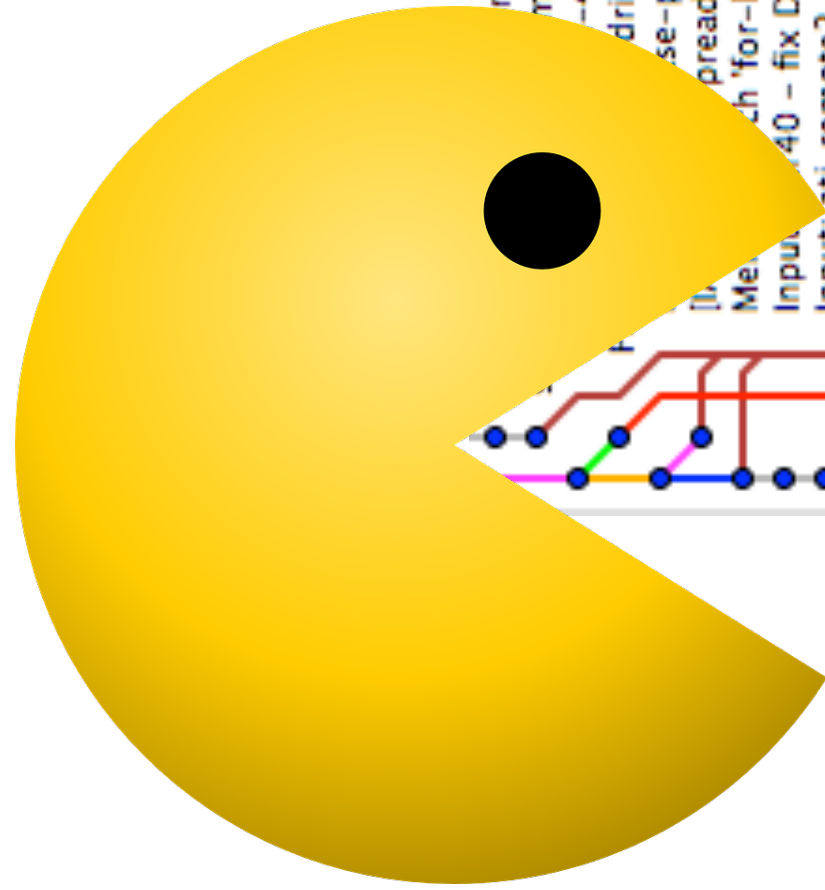
PATCH-BASED



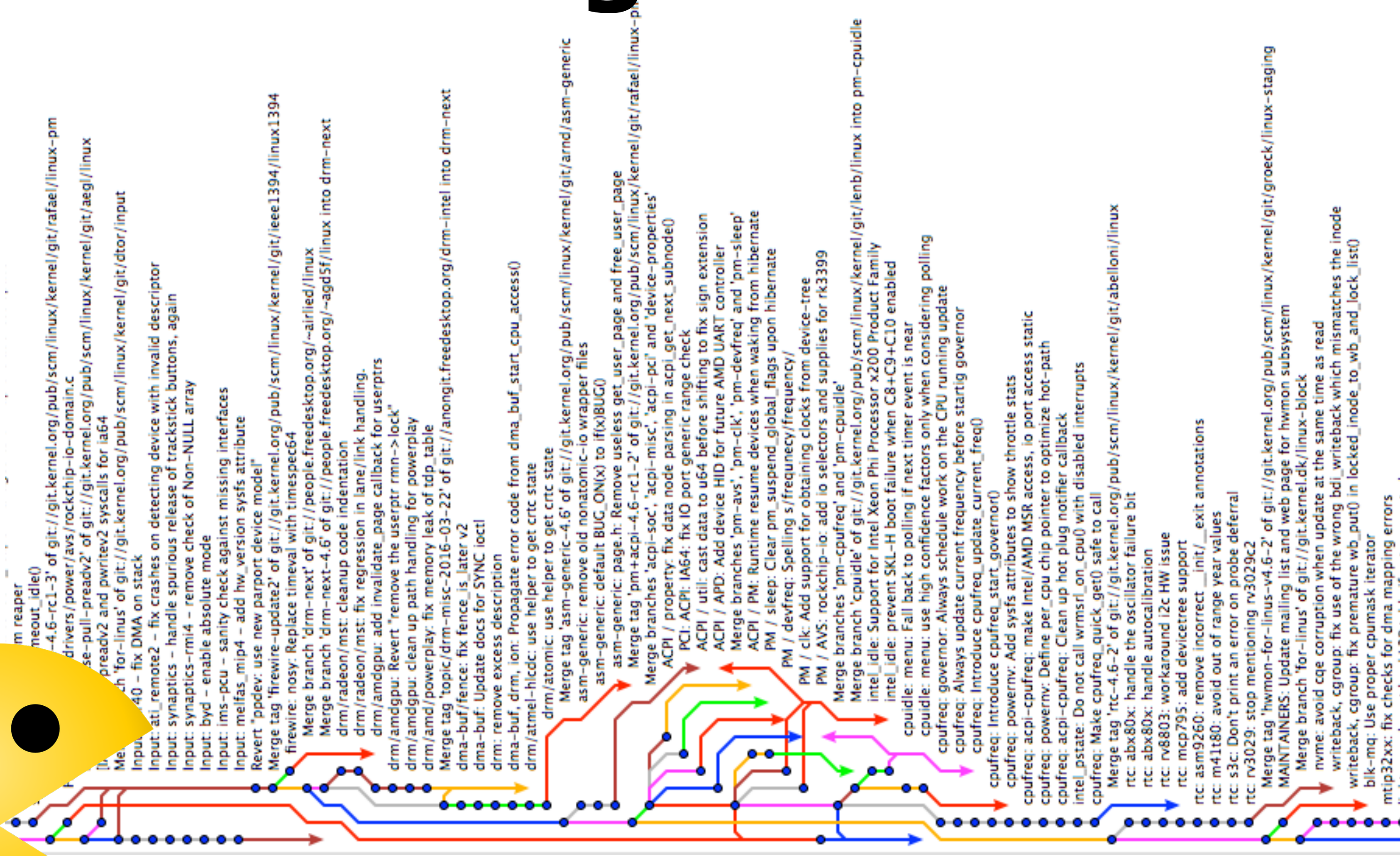
OT

Unfortunately, implementing OT sucks. There's a million algorithms with different tradeoffs, mostly trapped in academic papers. The algorithms are really hard and time consuming to implement correctly. ... Wave took 2 years to write and if we rewrote it today, it would take almost as long to write a second time.
— Joseph Gentle

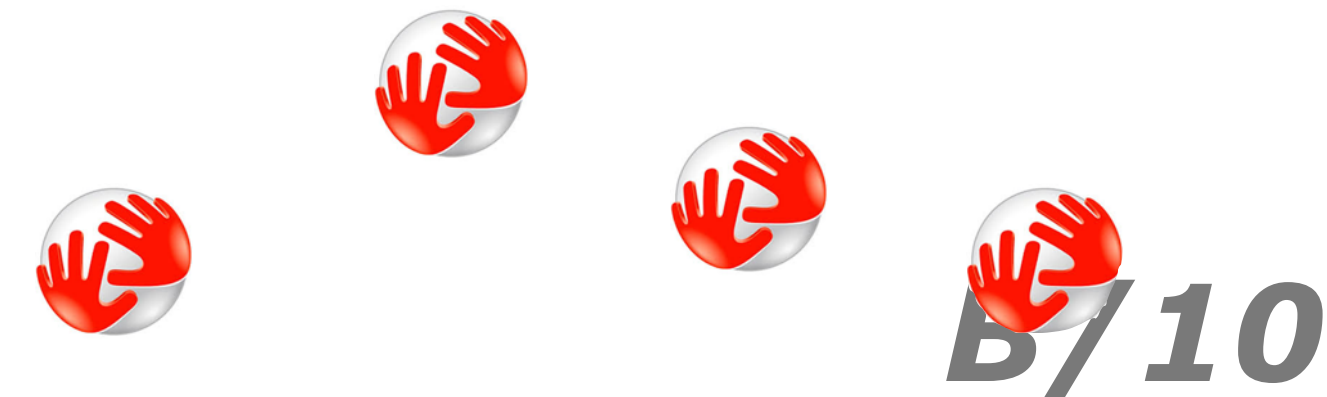
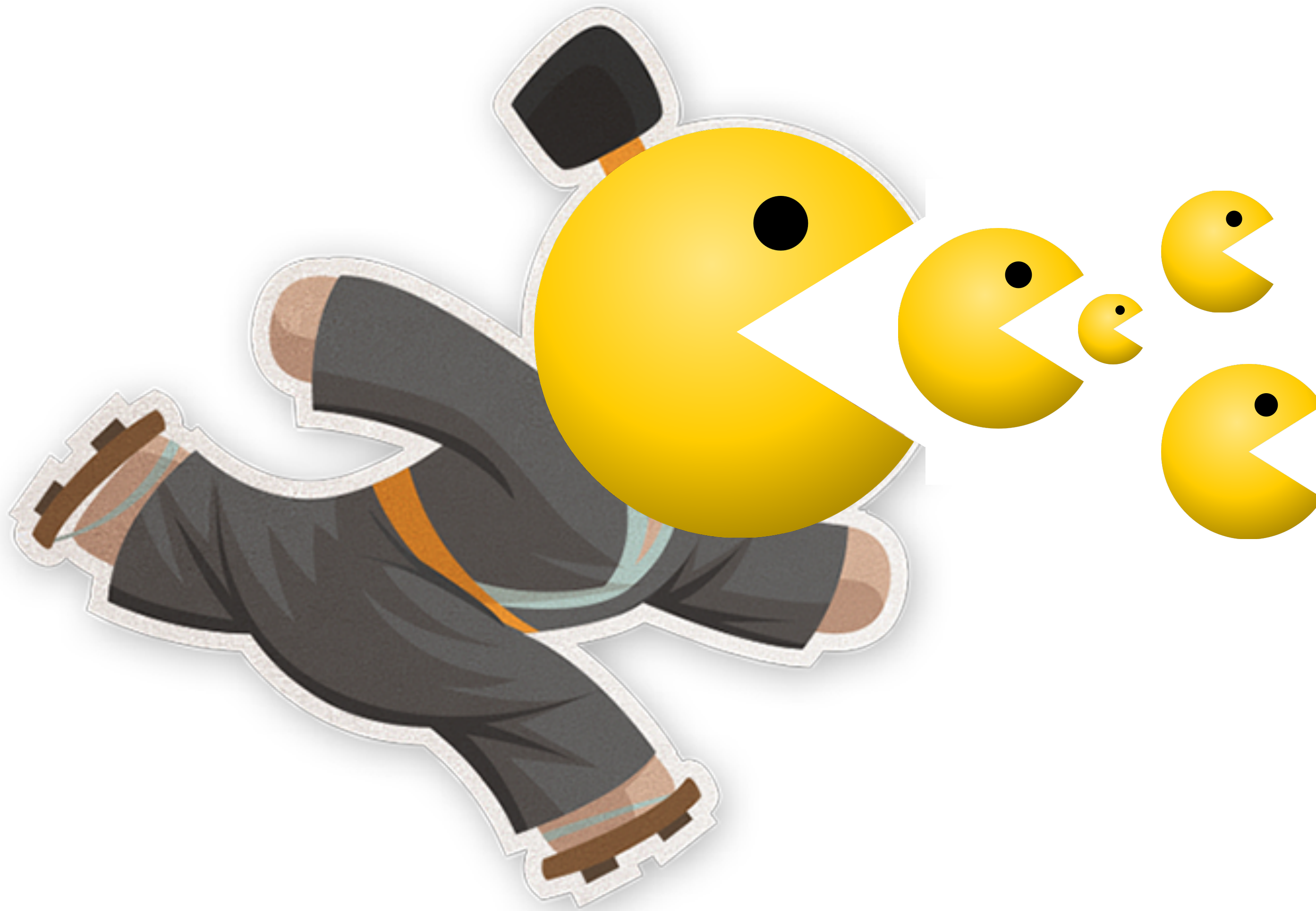




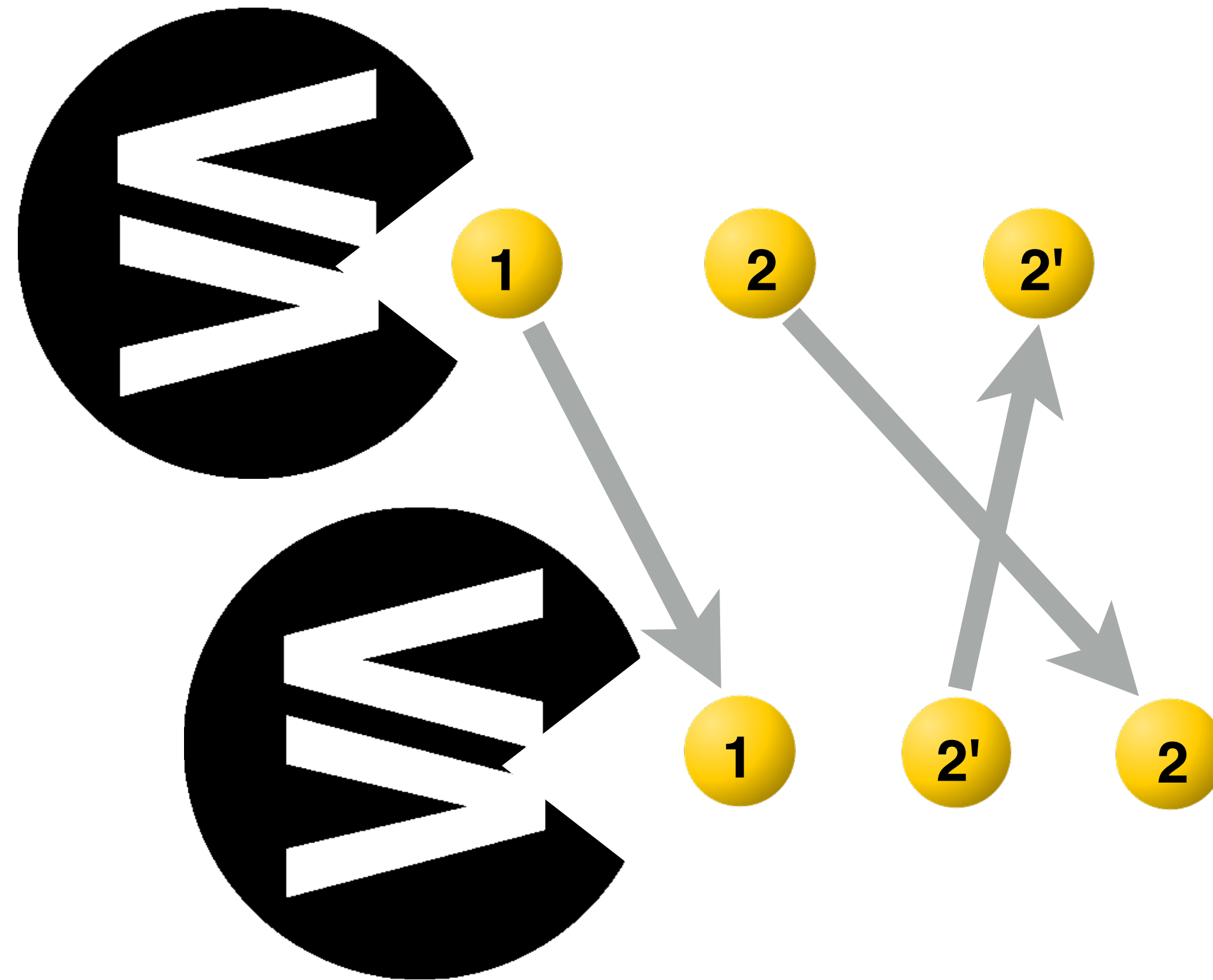
git



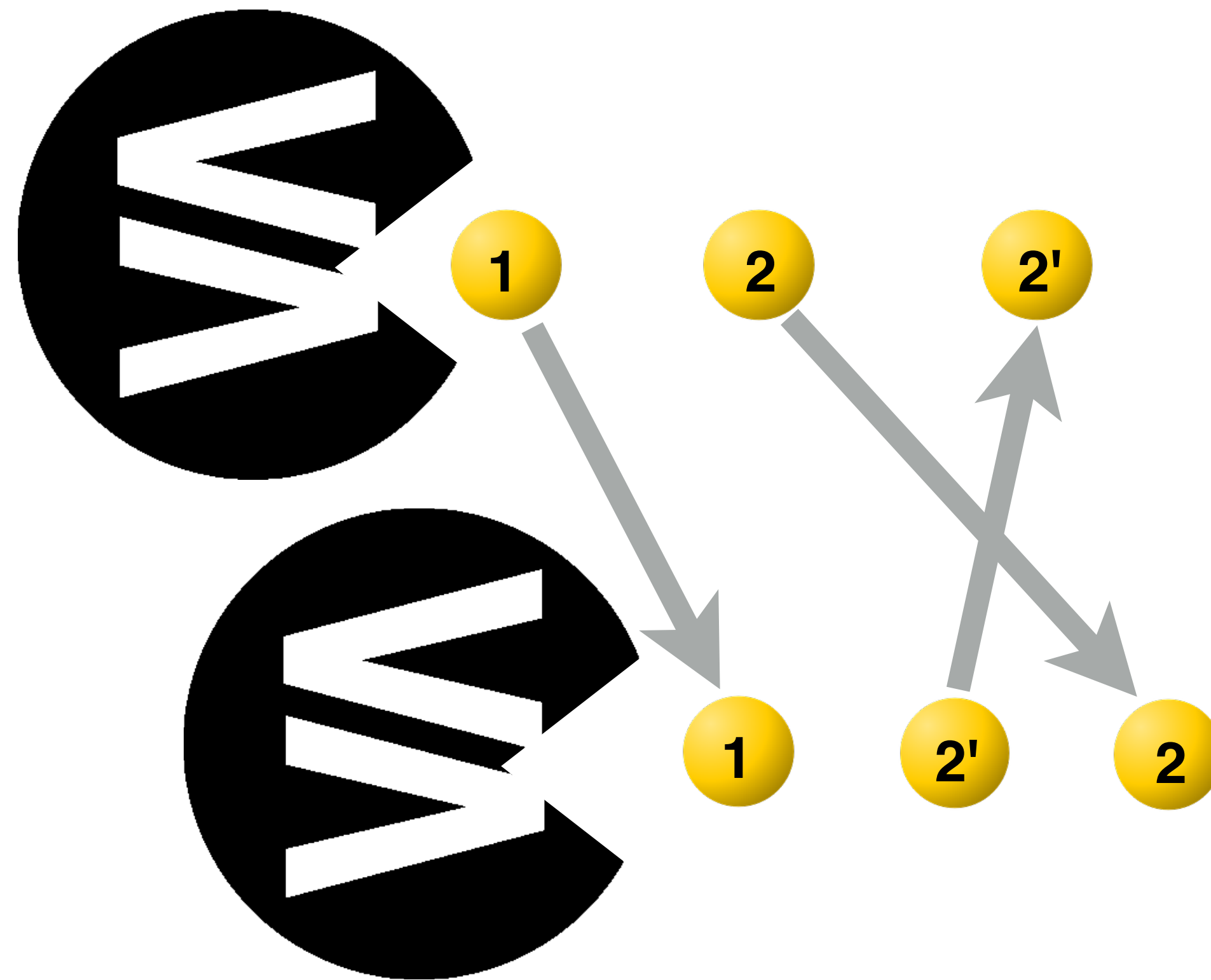
STATE-BASED CRDT



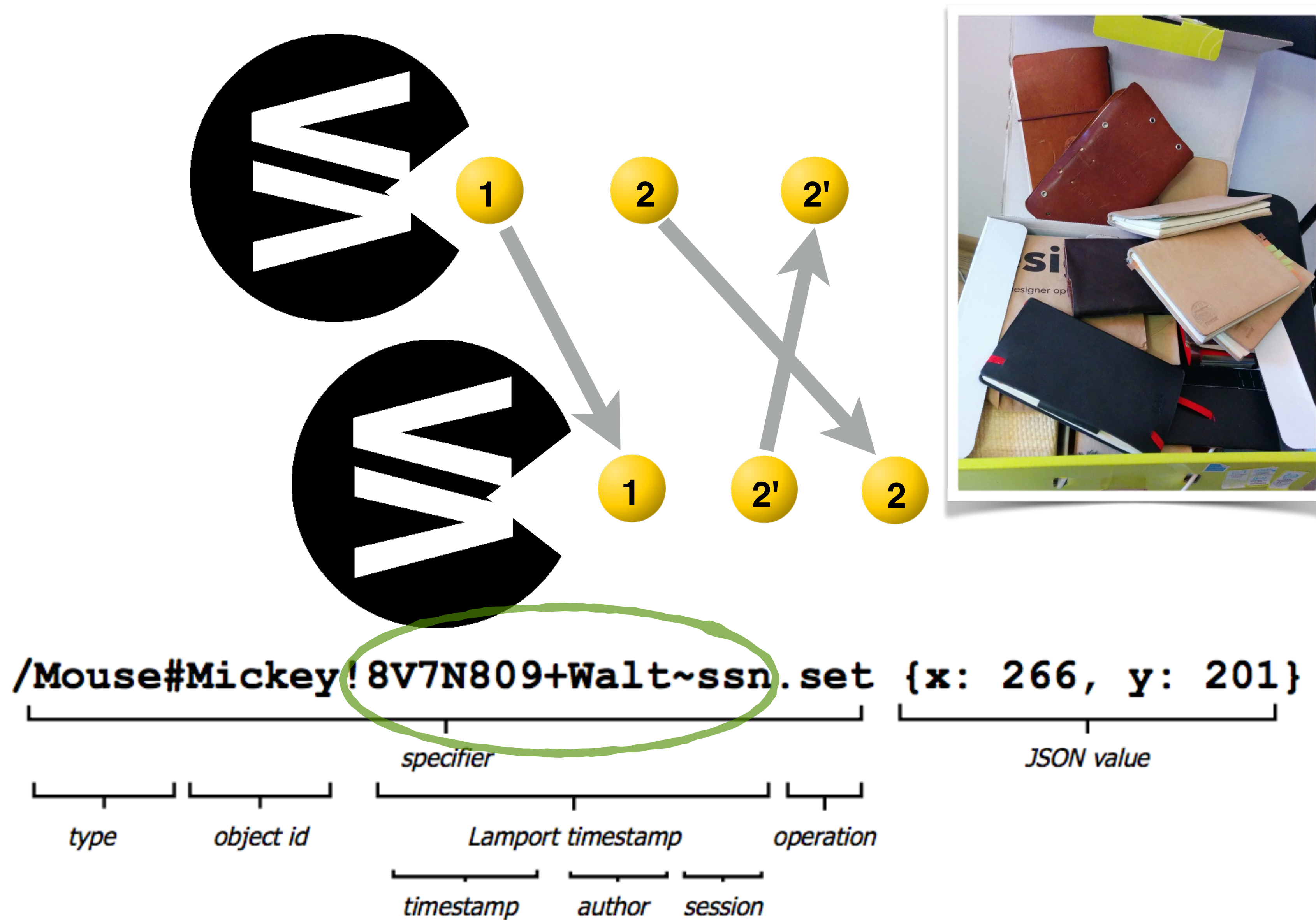
OP-BASED CRDT



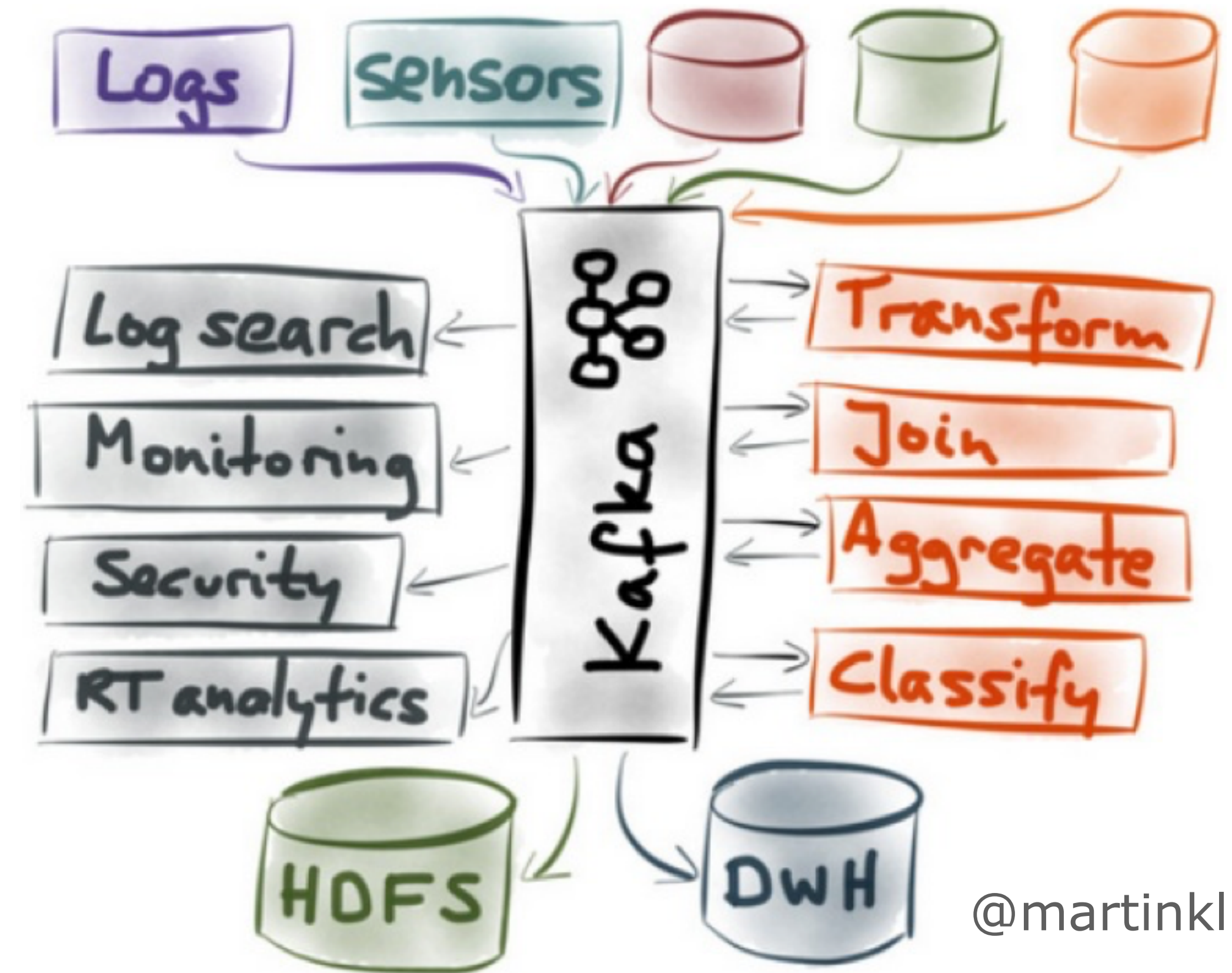
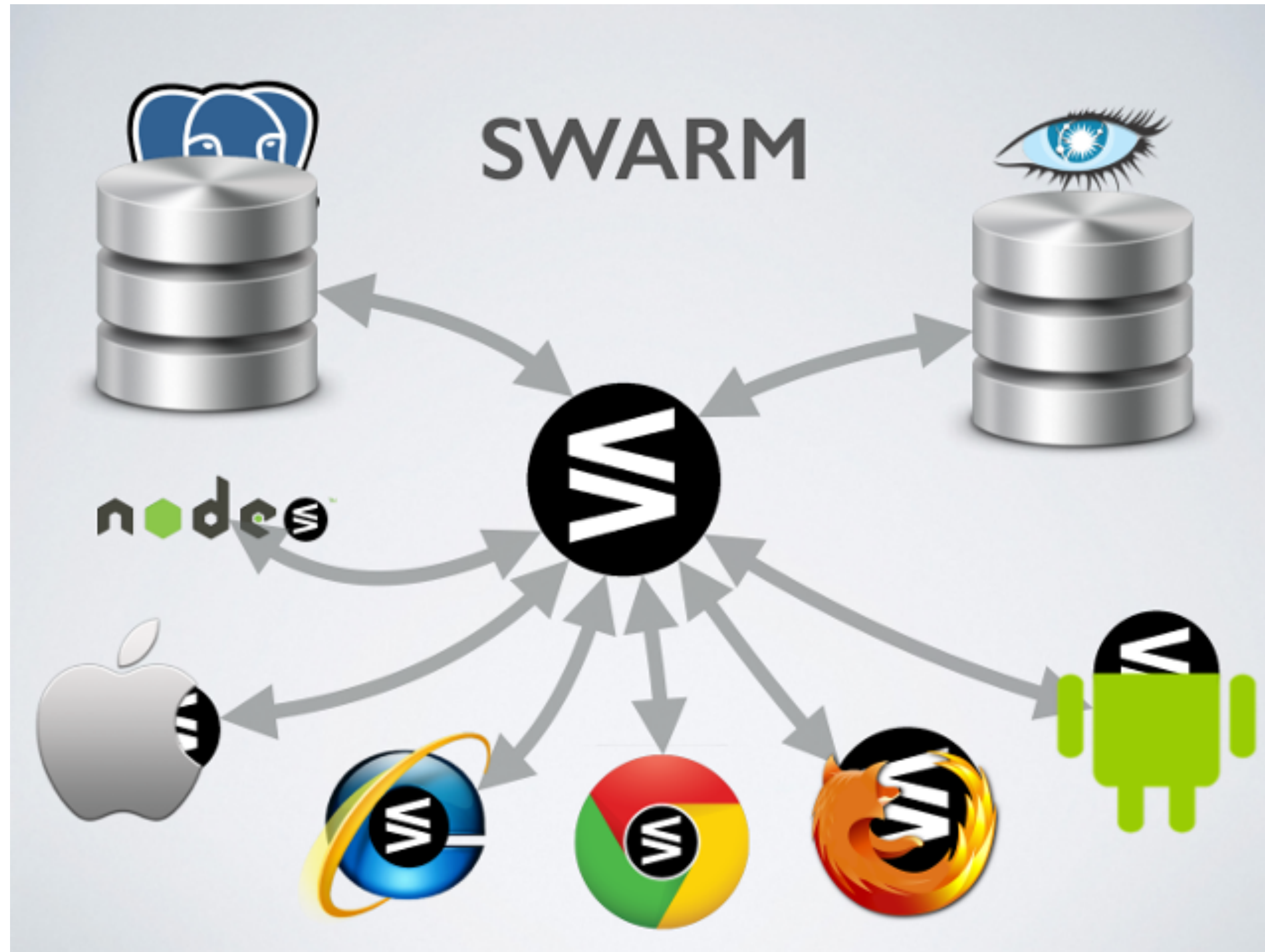
OP-BASED CRDT



OP-BASED CRDT



SWARMDB



2011
2012
2013
2014
2015 без vv
2016 1.0

Swarm ops

Object	~3	1CRE6l29	Cgritzk0k
1CREA_i	Doolebe0J	title	0

/Object+~3#1CRE6l29+Cgritzk0k!1CREA_i+Doolebe0J.title Hello world!

someObject.set('title', 'Hello world!')

someObject.on('change', fn)

host.on(`/Object#0+0ooledb.title`, fn)

host.on('change:title', fn)

host.on(fn)

Q&A

 **@gritzko**

 gritzko/swarm

 gritzko/swarm-protocol-docs

 <http://swarm-js.slack.com>

 @swarm_js

 swarm.js@gmail.com

gitter: swarmjs

Спасибо!

 **@gritzko**

 gritzko/swarm

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gitter: swarmjs