



UI Dev in Big Data World using 'Open Source'

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Director Engineering

About Me



- **Paramjit Jolly** working as **Director Engineering**
- **19** Years of experiences in **UI Design & Development** on different domains.
- Working in **Big data** analytics from last **11 years** in Guavus.
- **Local leader** for Delhi-NCR for **ux india**
- Active **Speaker** in UX & UI-Dev



THALES



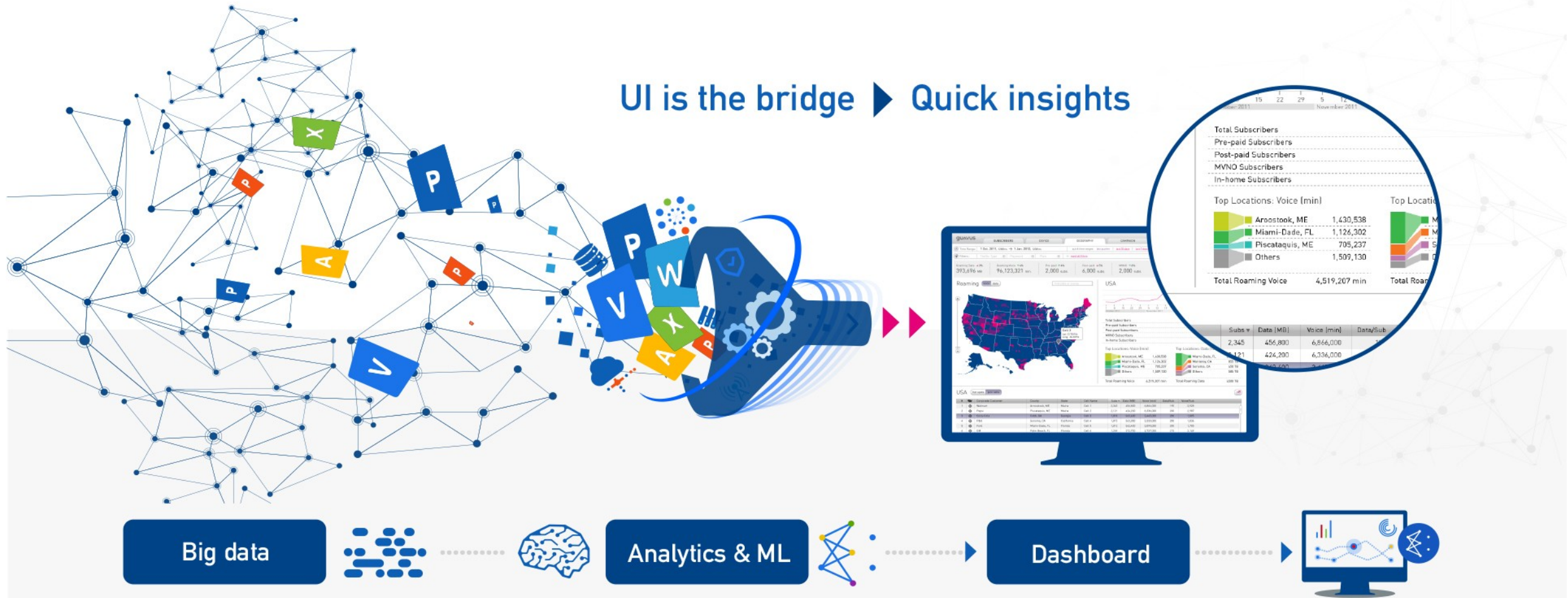
Agenda

- Why **UI** is **important** in Big data
- How to **Target** Big data problems
- Framework/Tool – **Selection Criteria**
- **Evolution** of big data **UI** at **Guavus**
- Write/Use “**Custom framework**” or “**Open Source Tool**” ?
- **Demo** – custom framework & open source tool
- Why to **contribute** to open source
- Design UI for **Future**

Why **UI** is important in Big Data World



Why UI is important in Big Data



Big Data - Analytics - UI

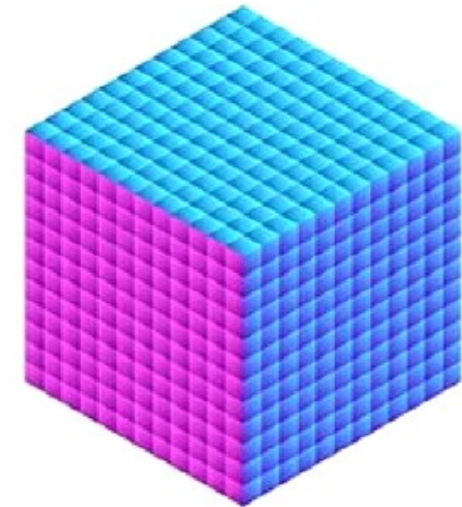
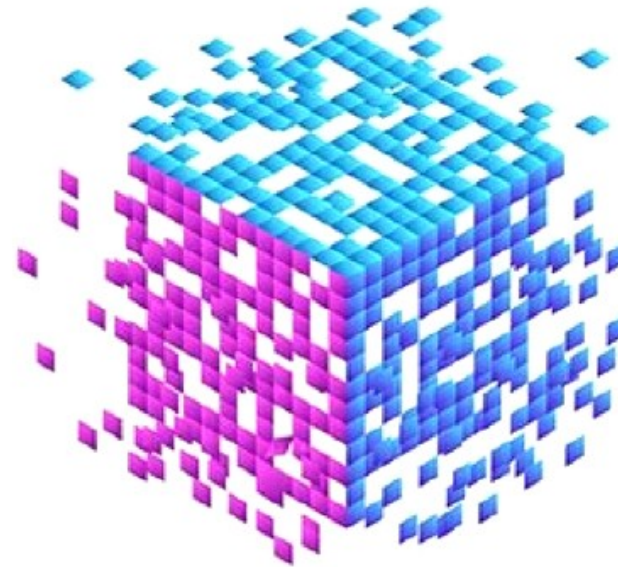
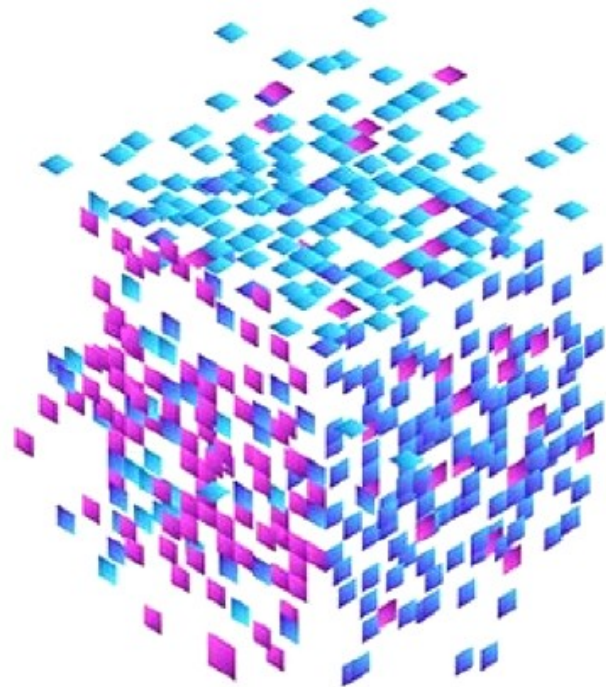
BIG DATA



ANALYTICS



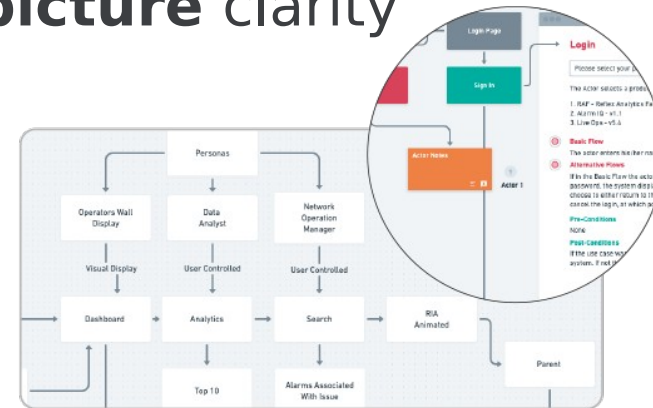
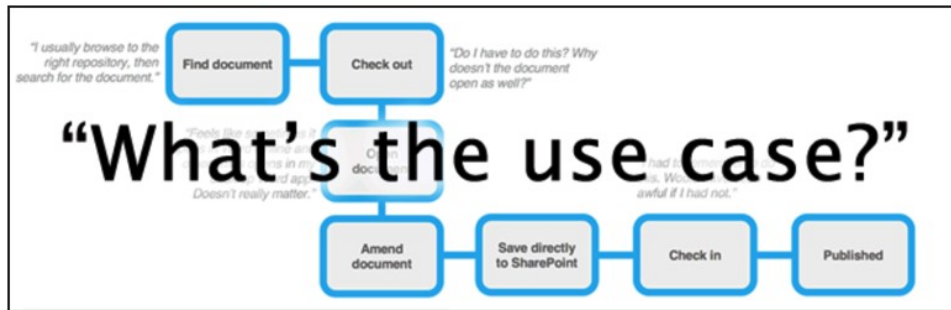
DECISIONS



How to **Target** Big data problems



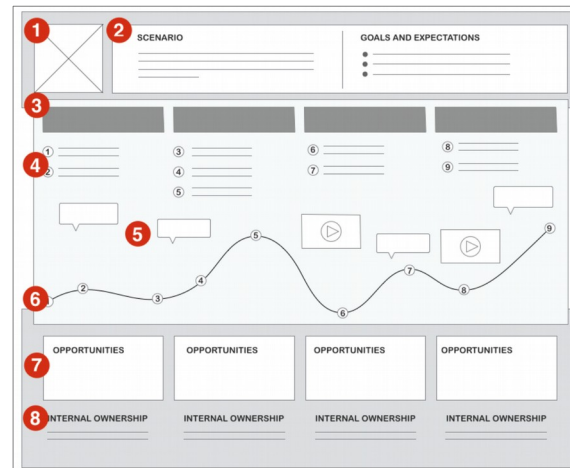
- Understand the **Use-cases** & get the **full picture** clarity



- Define the **Persona**, **UX**, **User Journeys**, Form factor etc

UX DESIGN PERSONAS

Name	Alex Bühler, 38	Ines Widmer, 34	Marc Schenk, 36	Elaine Bühler, 37	Paul u. Eva Bühler, 64
Typ	Leistungssportler	Gesundheitsorientierte Sportler	Gesundheitssportler	Frau von Alex	Eltern von Alex
Umfeld	Manager, lebt mit Partnern bei Run, eigenes Haus, trainiert 2-4 mal pro Woche	Marketing Assistentin, lebt Fitness und Wellness, joggt 2 mal die Woche	Starke Instabileur, Mitglied Turnverein Egg, joggt gelegentlich	Heidi und Mutter, arbeitet 40% als Krankenschwester	Fertiger oder kurz davor, Bestatter und aktiv
Kommunikation & Geräte	iPhone, Laptop, Samsung TV, Garmin Forerunner, Xing, iPad, Facebook, 20 Min App	iPhone, Apple, Samsung TV, Facebook, 20 Min, RunBastic und Lifestyle Apps	Android Smartphone, Callcom analog TV, ist oft am Smartphone und Sportveranstaltungen vor Ort	iPhone, Facebook am PC, zuhause, SMS	Einfaches Mobiltelefon, haben neue Samsung TV, sagen HD, höher Textext, neu ein iPad
Ziele	"Ich will unter die Top 30 Overall"	"Hauptache unter einer Stunde im Ziel"	"Mein erster Volkslauf als Motivation"	"Wie geht's wohl Alex? Erreicht er sein Ziel?"	"Wir sind so stolz auf Alex"
Ziele	Alex kommt oft und ist erregung, setzt sich Ziele und will unter die ersten 30. Vergleicht sich mit anderen Sportlern aus dem Training. Kein Konzept die meisten Läufe werden und benötigt für die wichtigsten Informationen wie Lagenplan und Zeiten und Resultate.	Ines ist gesundheitsorientiert und möchte schlank und fit bleiben. Sie geht ins Fitnessstudio und joggt zusammen mit ihrer besten Freundin als Ausgleich zum Job. Ines orientiert zusammen mit ihrer Freundin die Laufstrecke mit einer Freizeitsport-App (10 km). Das gemeinsame Erlebnis steht im Vordergrund.	Marc ist ein Hobbykäufer. Er hat bereits etwas zugekauft und möchte durch regelmäßiges Training Adidas kaufen. Es ist sein erster Sportartikel und zugleich Motivation für Training zu Hause. Er besitzt keine Trainingszeiten und es interessiert ihn, wie er es ohne Messer werden würde (Rang).	Elaine ist die Frau von Alex. Sie hat bereits etwas zugekauft und möchte durch regelmäßiges Training Adidas kaufen. Es ist sein erster Sportartikel und zugleich Motivation für Training zu Hause. Sie besitzt keine Trainingszeiten und es interessiert ihn, wie er es ohne Messer werden würde (Rang).	Die Eltern von Alex sind selber noch aktiv und sehr interessiert wie es Alex jeweils erging an den Läufen. Sie kommen aber selber nicht mehr mit, sondern verfügen die Resultate über Internet oder die Tages-Anfragen. Oft hat die Eltern, Alex das Laufen gegenüber größeren Brüdern, hat Samsung TV und eine Fitnessuhr.



- Identify app area's which deals with **real Big data**

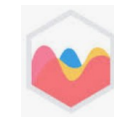


- Depends on Big data visual needs – choose a **library** like...

 sigma.js

 Data-Driven Documents

 plotly.js

 Chart.js

 Cytoscape.js

 vis.js

three.js

 ECHARTS

 KeyLines

 LINKURIOUS

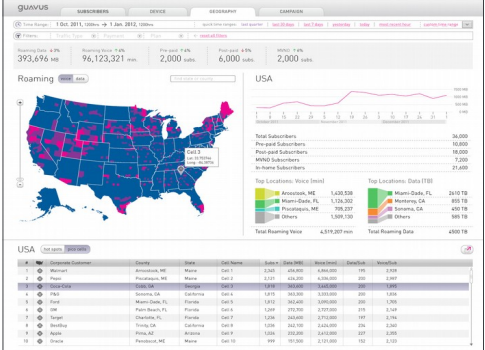
- Check the **Performance** of big data library



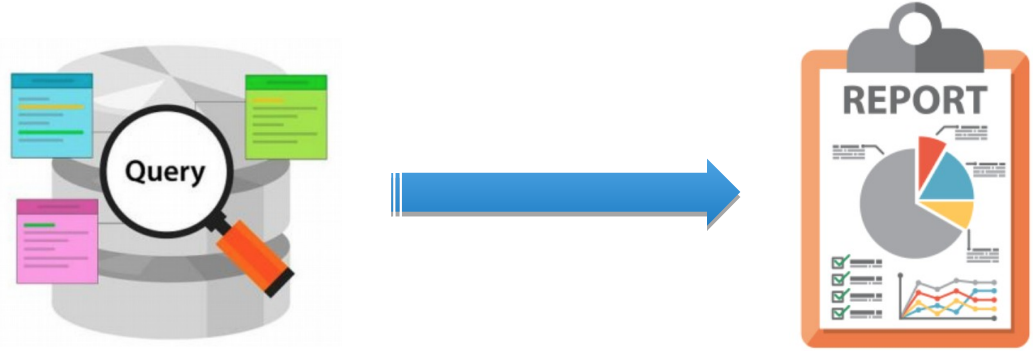
Performance Check-Up



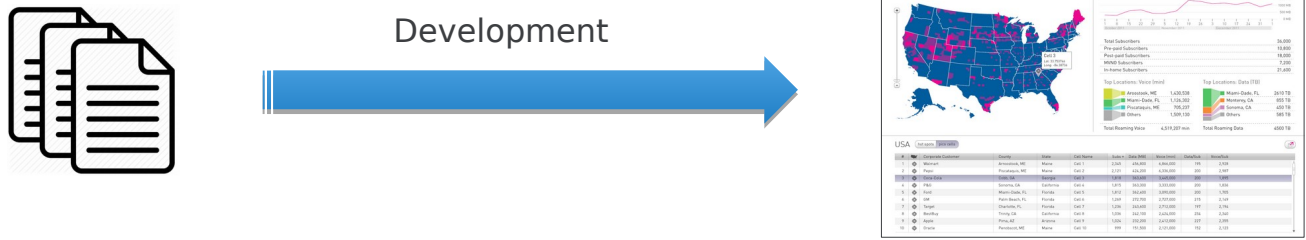
- **Caching support** needed in Big data areas



- Identify **Long running queries**, convert to **reports**



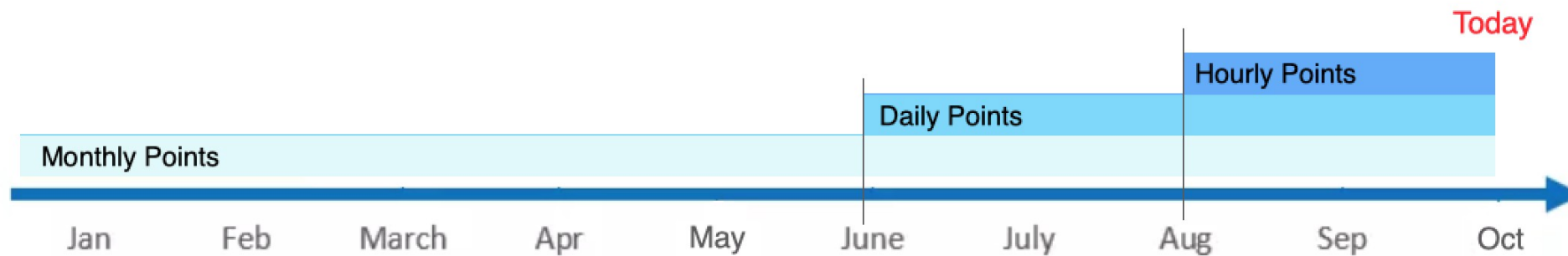
- Offline **data factory** - ease during development



- Identify need- **Real time** data v/s **Auto refresh**

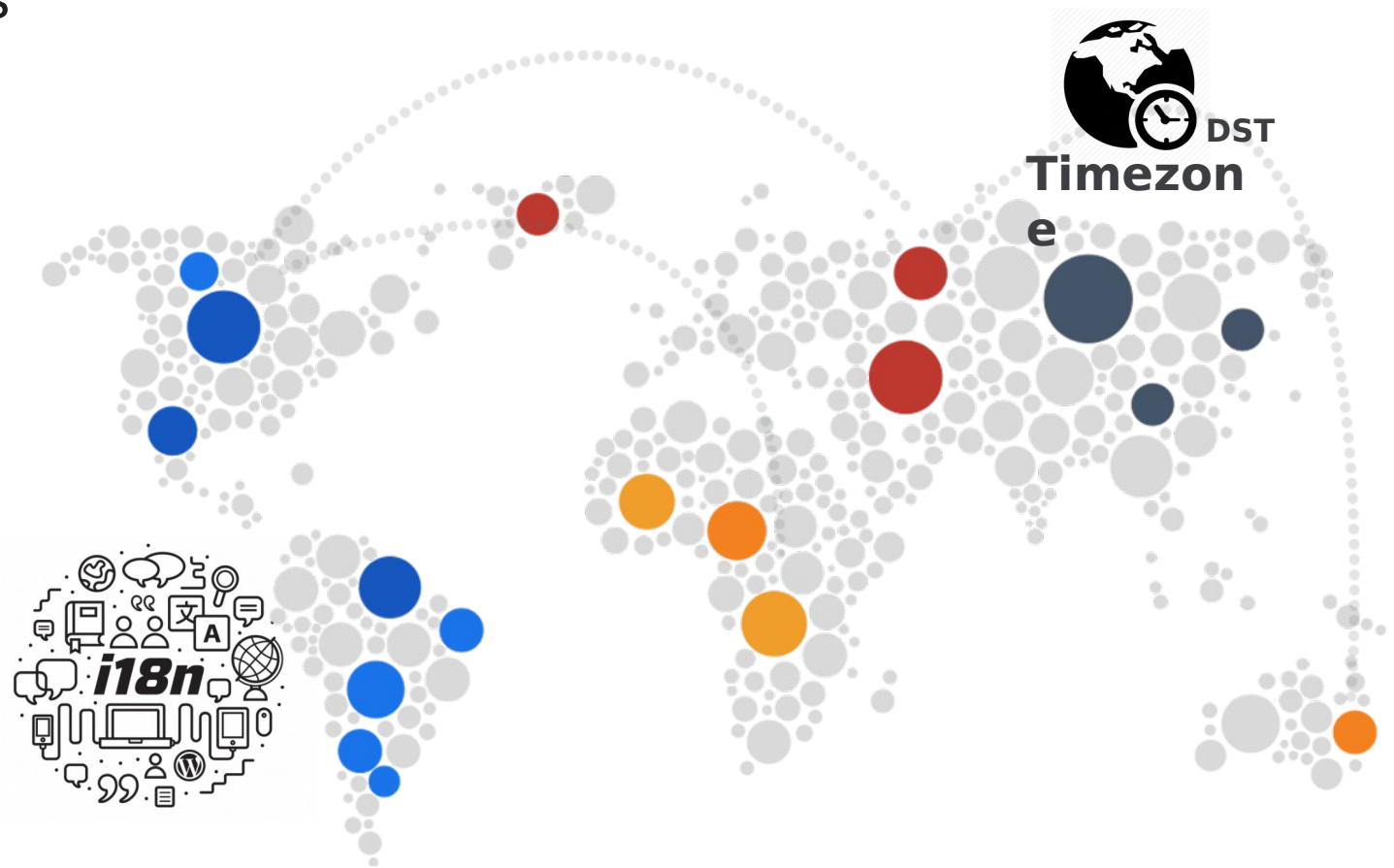


- **Gra**



- **Timezone & DST** handlings

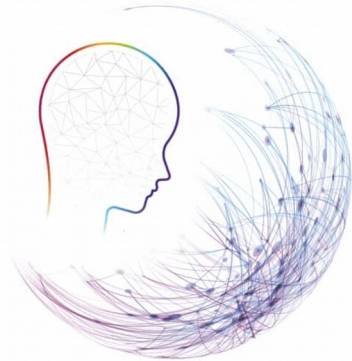
- **i18n** support



- Theme support



- Customer **Problems is changing**, here



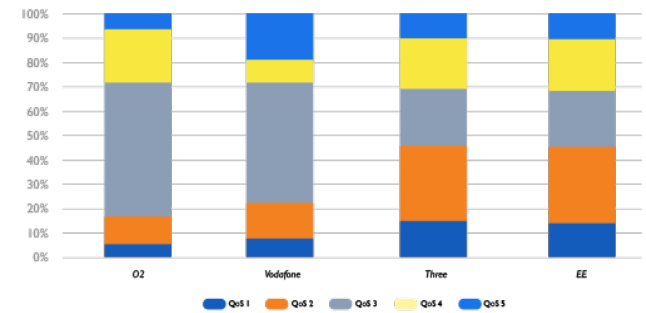
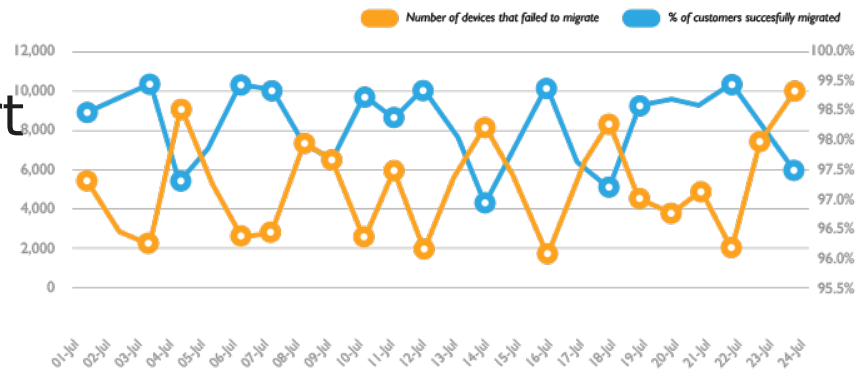
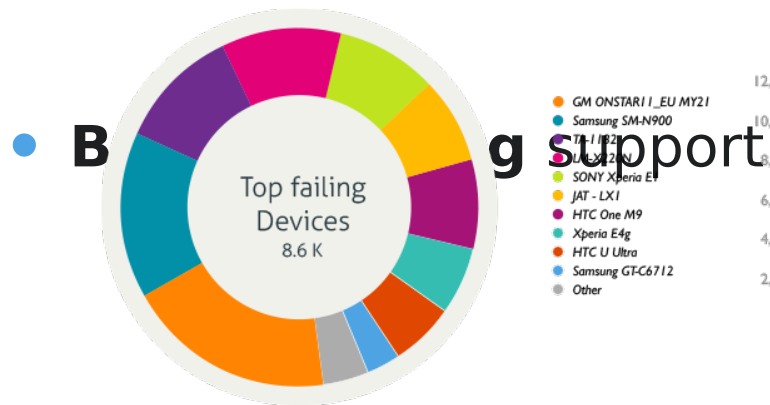
for extension

How to choose a right framework

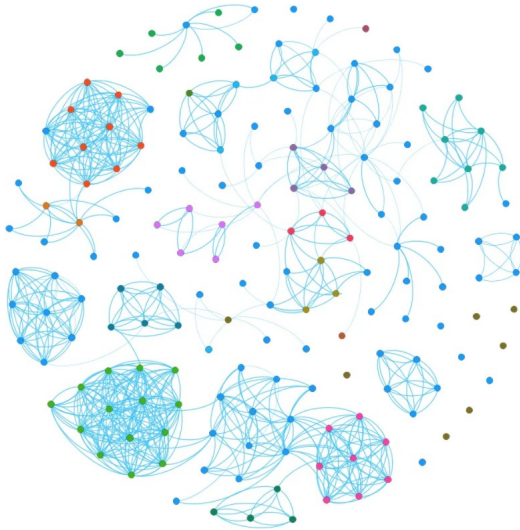
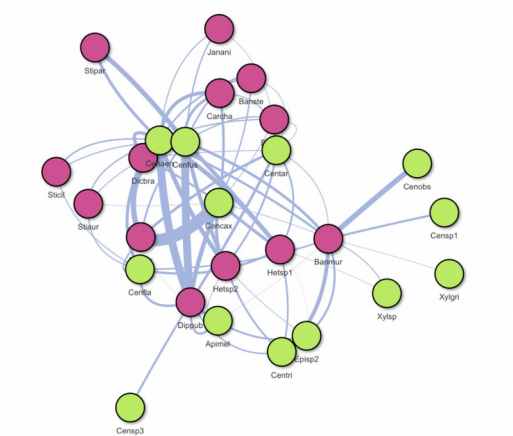
“Selection Criteria”



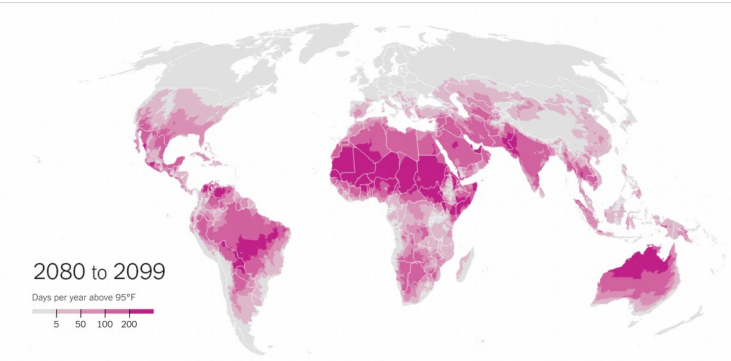
- **Lay-outing** support



- **Graph** visualization support



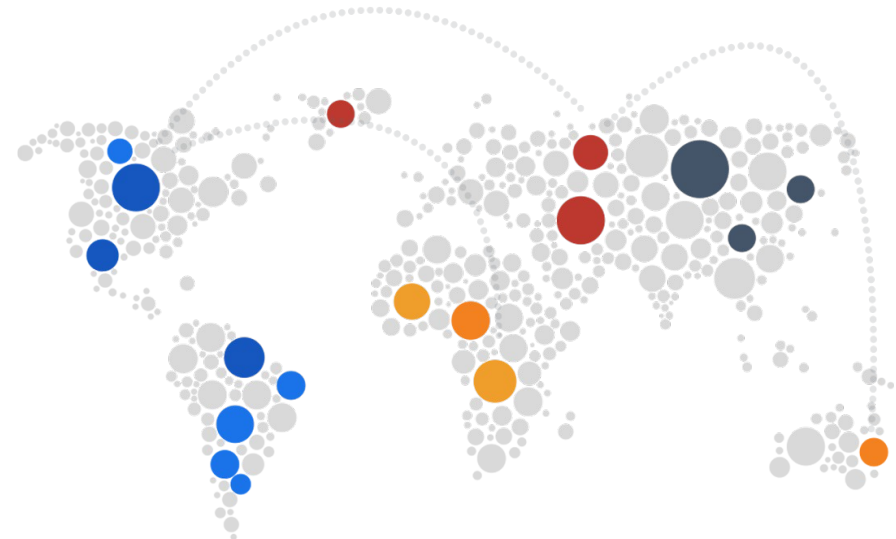
- **Map** visualization support



- Time range – custom & **quick links**

🕒 15 Mar 2017 00:00 - 15 Mar 2017 15:00 [Last 6 Months](#) [Last Month](#) [Last 7 days](#) [Yesterday](#) **Today** 📅

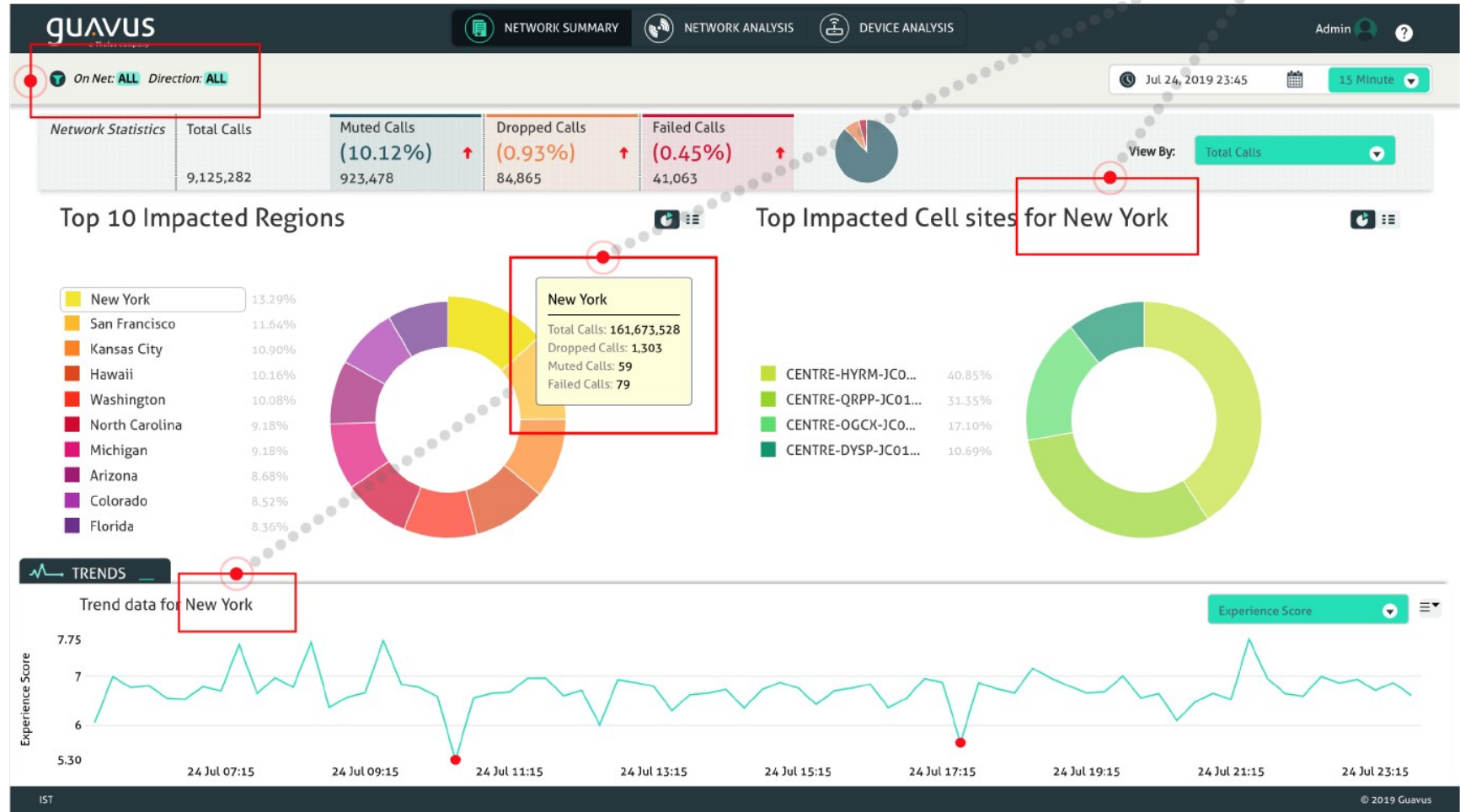
- **Timezone** support



- Filters Support (**global**, **local**)

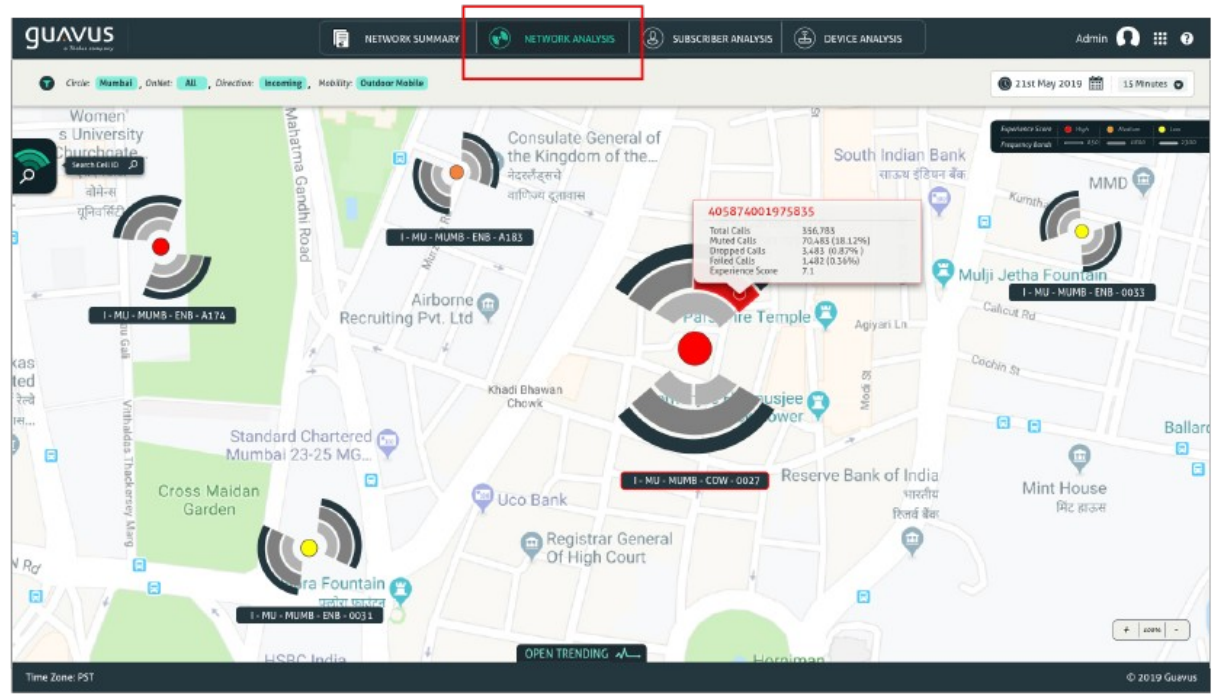
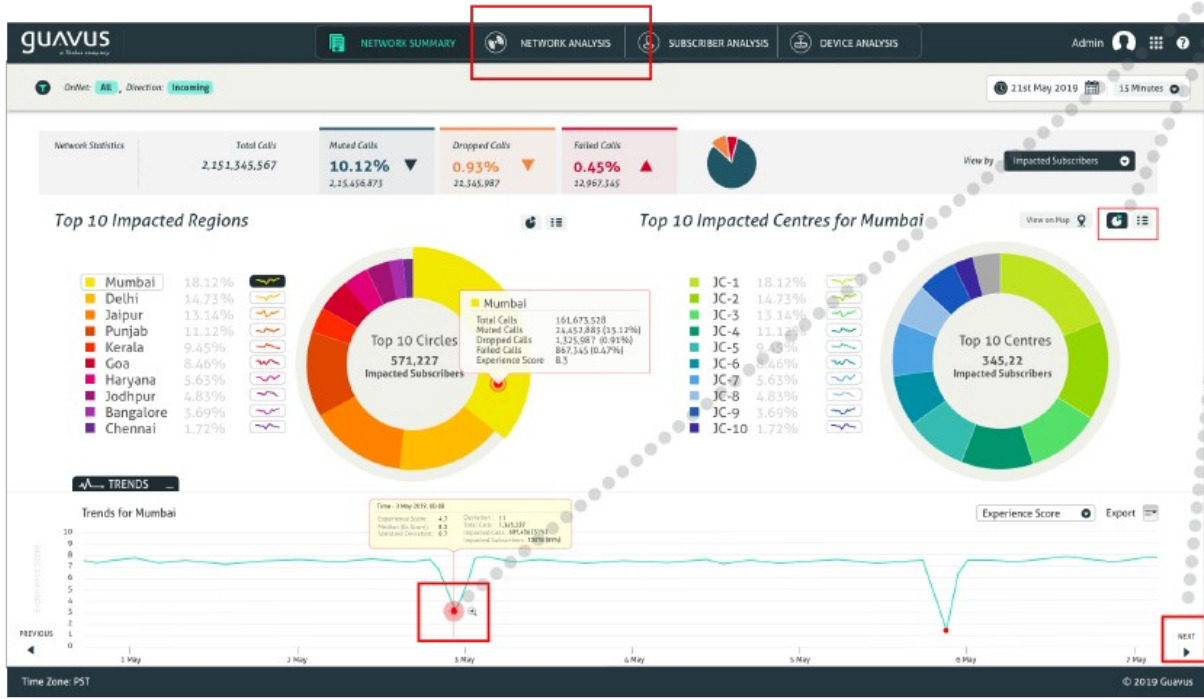
Local Filters

Global Filters



- Dashboard linking

Dashboard Linking



- Connecting **Multiple data sources**



- **Cancel Query** Support



- Query Builder support

- Basic
- Advance



Advanced Query

⚠

- =
- !=
- is equal
- is not in
- not

Basic Query

Routers
ChicagoMDF346

Start Time
2013-09-04 12:00

End Time
2013-09-04 12:00

Page Size
500

Sort by
Start time

Sort order
Descending

Query Selection :

Filter

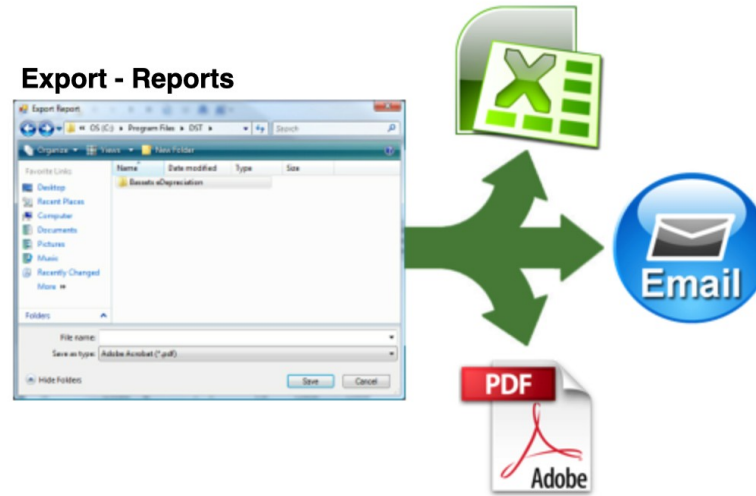
- a Search Field Starts with Enter text
- b Search Field Starts with Enter text
- c Search Field Starts with Enter text

Overall Matching Logic:

AND OR NOT () a AND b AND c

- **Export** Support

- Snapshot
- CSV
- Pdf



- Dashboard **sharing**

Share Dashboard



URL



EMAIL



EMBED

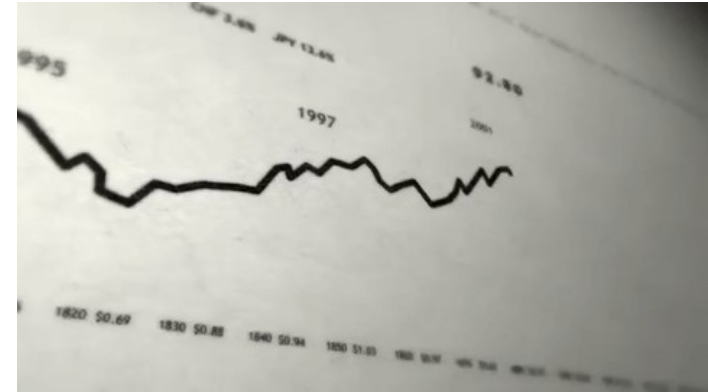


GROUPS



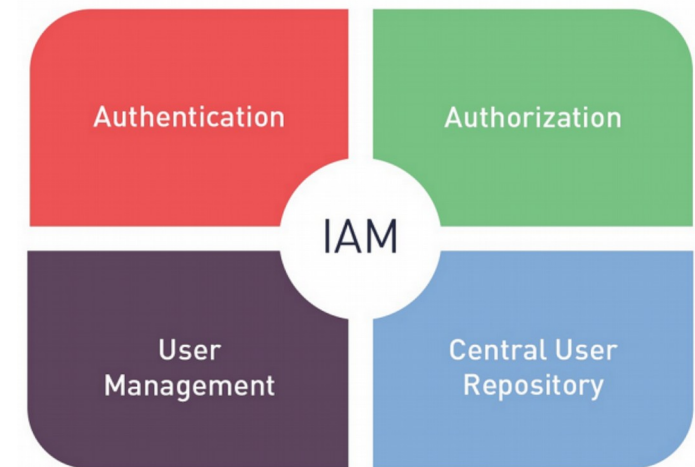
EXPORT

- **Real time data** support



- **Security**

- IAM - Identity and access management



- **Testing & Monitoring**



- **Documentation**



Selection Criteria - sheet

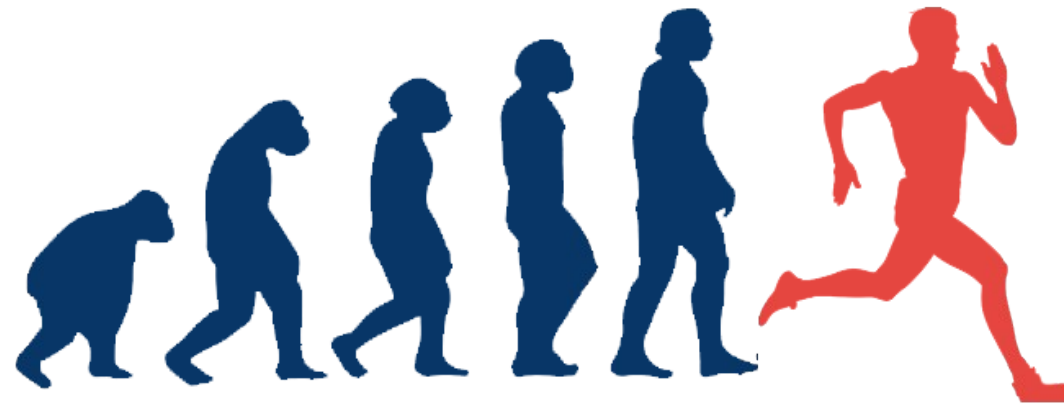
> Basic criteria for open source

- List of Companies using
- #Stars to github
- Bug & Feature commit rate
- Future roadmap

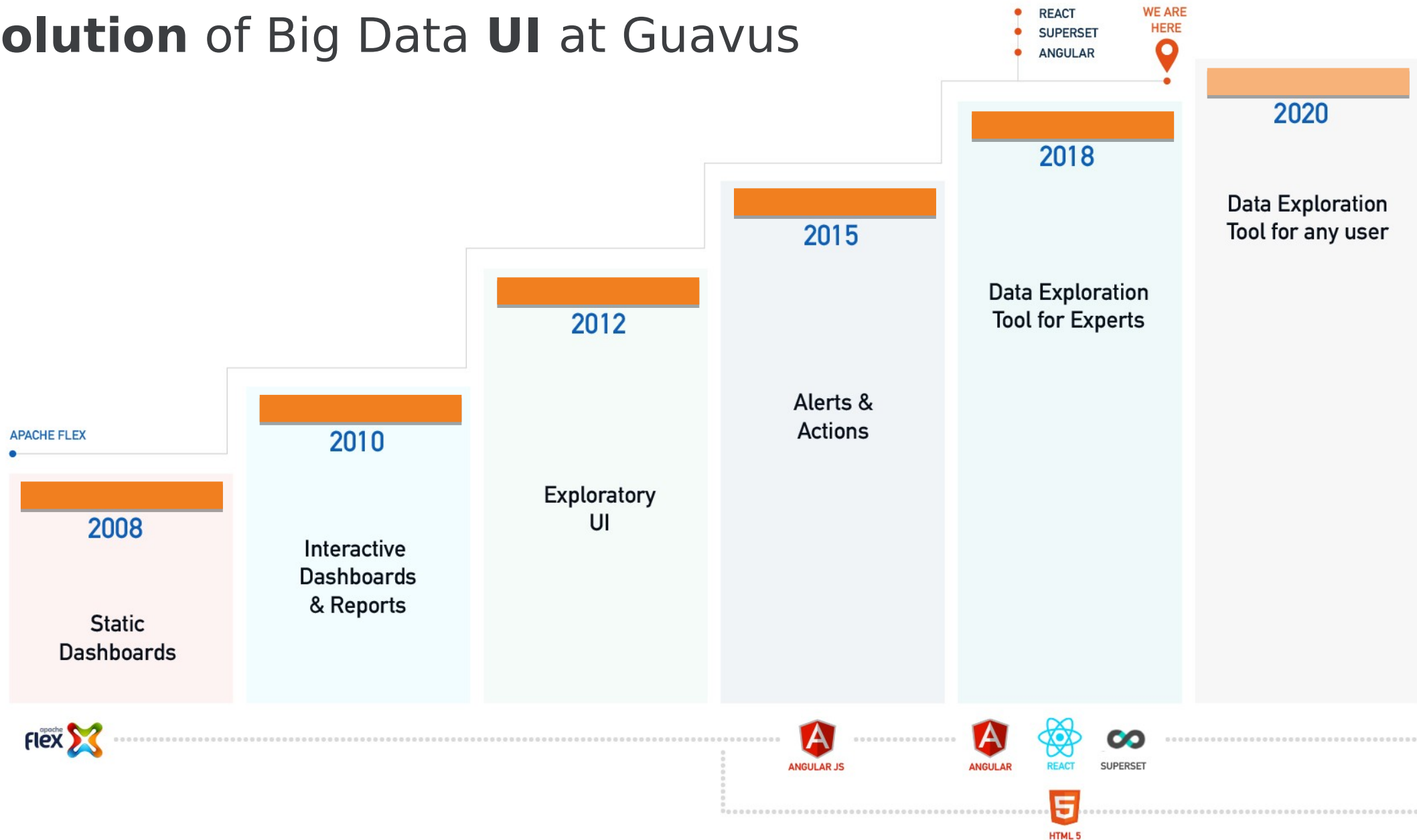
Selection Criteria

✓	Priority	Feature
<input type="checkbox"/>		Lay-outing control
<input type="checkbox"/>		Basic charting support
<input type="checkbox"/>		Graph support
<input type="checkbox"/>		Map support
<input type="checkbox"/>		Timerange – custom & quicklinks
<input type="checkbox"/>		Filters - Lcoal
<input type="checkbox"/>		Filters - Global
<input type="checkbox"/>		Dashboard linking
<input type="checkbox"/>		Timezone support
<input type="checkbox"/>		Connecting Multiple data sources – Hive, Graph, Elastic, MongoDB etc.
<input type="checkbox"/>		Cancel query support
<input type="checkbox"/>		Query Builder support - Basic
<input type="checkbox"/>		Query Builder support - Advance
<input type="checkbox"/>		Real time data support
<input type="checkbox"/>		Export Support : Snapshot, CSV etc.
<input type="checkbox"/>		Dashboard sharing
<input type="checkbox"/>		Security -Authentication & Authorization
<input type="checkbox"/>		Testing
<input type="checkbox"/>		Monitoring
<input type="checkbox"/>		Documentation

Evolution of Big Data UI at Guavus



Evolution of Big Data UI at Guavus



Write **custom framework** or use **open source tools** to develop



REACT



ANGULAR



VUE



When to write/use - **Custom Framework**

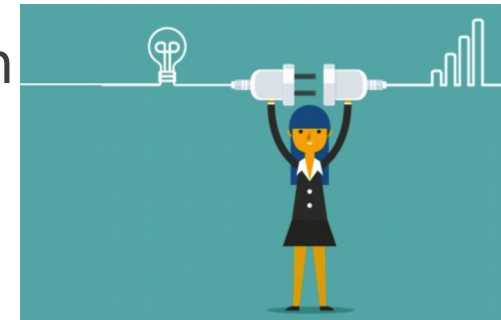


- Your **vision** is not matching with any open source vision
- Too **many customization** needed every-time so need a **thin framework**
- Long term vision to create **differentiator** in market
- Could be potential candidate for **new open source** - framework
- **Benefits:**
 - Better control
 - future proof
 - value in market

When to use – **Open source tool**



- Most of needed **features available** in open-source tool
- Has **extendable architecture** for your vision
- Connect to **multiple data sources**
- Easy to **theme & customize**
- Tool is actively enhanced & fixed
- **Benefits:**
 - Time to market
 - Lot of hands to develop

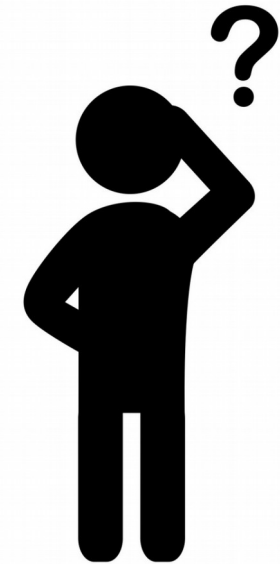





How to choose - “Custom






Common question from developers

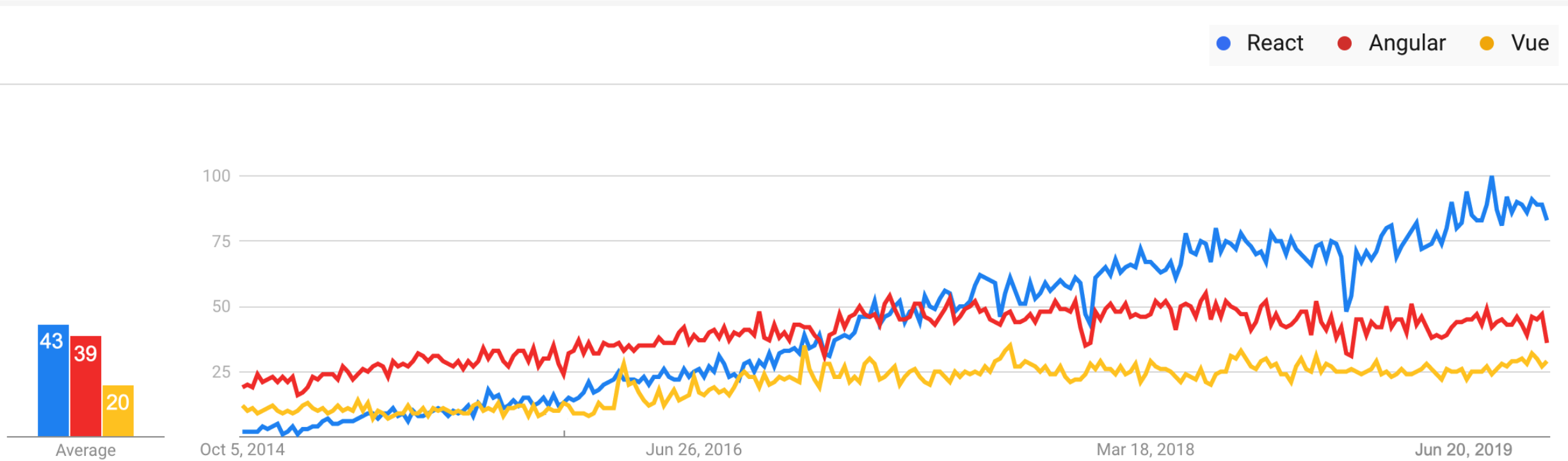
- Which is **better** for my project?
- Which offers the best **performance**?
- Which is good for **small** size or **large** size applications?
- Which of the three is the most **reliable** one?
- Which offer me **flexibility** ?
- Which **factors** to considering while choosing framework ?



	 ANGULAR	 React	 Vue.js
Initial Release	Oct, 2010	May, 2013	Feb, 2014
Current Version	8	16.6.3	2.17
Easy to learn	High (Learn TS)	Medium	Easy
Backed by	Google	Facebook	Ex-Googler
Used by	Google, Wix	Facebook, Uber	Alibaba, Gitlab
File size - Production	167 KB	109 KB	30 KB
File size - Development	1.2 MB	774 KB	279 KB
Data binding	Bi-directional	Uni-directional	Bi-directional

	 ANGULAR	 React	 Vue.js
Npm weekly downloads	433,361	3,940,035	709,943
Model	MVC	Virtual DOM	Virtual DOM
Startup time	Longer	Quick	Quick
Complete web apps	Can be used on standalone basis	Need to be integrated with many tools	Require 3 rd party tools
When to use	Production, Enterprise applications	Production, custom UI apps	Startups, production
Github stars	59,302	11,993	121,050
Summary	Angular is a complete framework with all the tools a modern JavaScript developer needs.	React is a library not a framework, you need to choose you own tools needed to create full app, which give flexibility but other hand difficult to choose.	Vue library is just a mix of Angular and React

Interest over last 5 years



Custom Framework - App demo

- [Load Advisor](#)

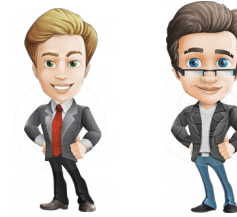


How to choose- “Open source Tools”



Choose open source Tools like Kibana , Superset, ...

- Define **Target Persona** – Business Analyst, PM



- Your **vision** for Tool matches with any of open source

- **Pros:**

- Quick time to market
- Easy of use
- consistent look n feel

- **Cons:**

- New feature addition takes longer
- Architecture – steep learning curve
- Upgrade problems if you customize & its not really extendable



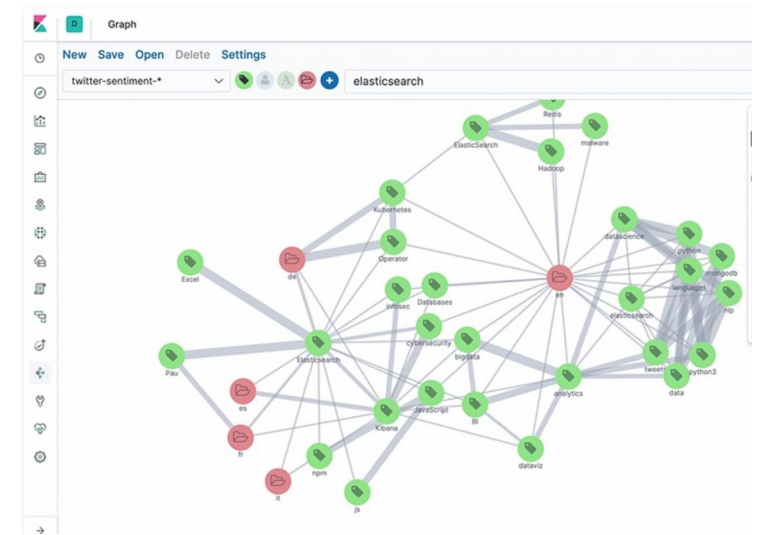
- Lot of tools in market from open source to paid

- Kibana, Superset , Graphana, kibi, Google Data platform, powerBI, Tablaue, Amazon quick Inisghts etc.





- Its a Window into the Elastic Stack. It allows you to **visualize** and **explore data** as well as manage and monitor the entire Elastic stack
- You can do aggregations, searches, time series etc.
- You can create dashboard using your data in ES.





- **Pros**

- **Plugin model** is very nice
- Very good for Elastic & Search use cases which needs ELK
- Good variety of graphs & Visuals
- Create Quick dashboards

- **Cons**

- Not able to connect to multiple data sources natively
- Heavily dependent on Elastic



TM

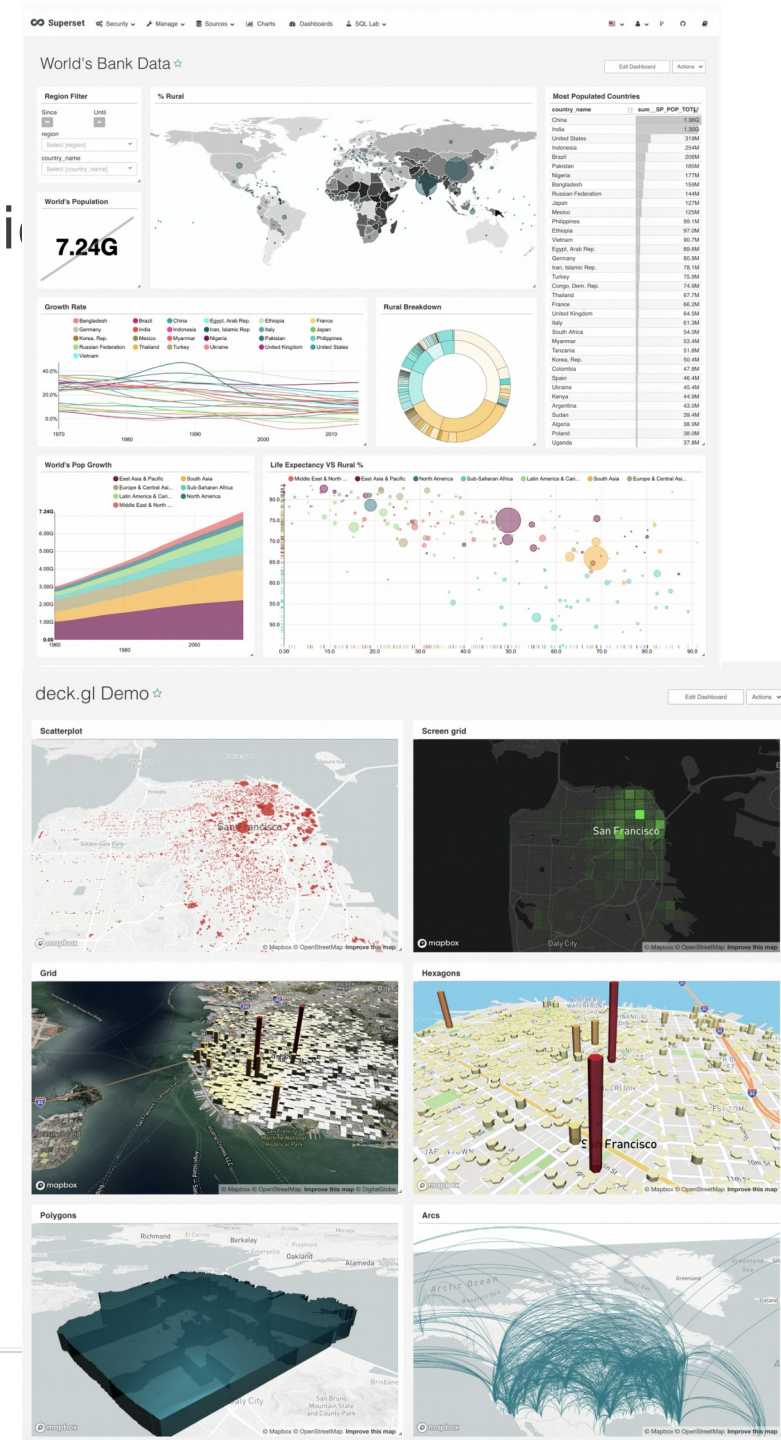
Apache -



Superset

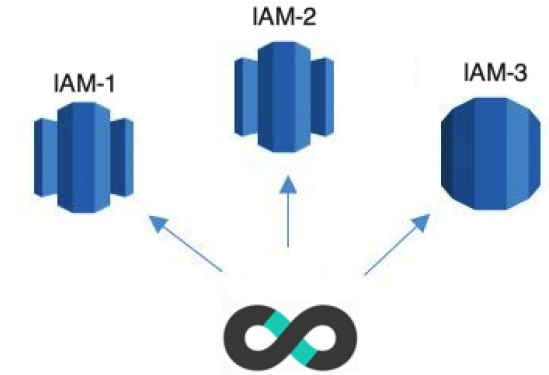
Superset

- Enterprise-ready **Business Intelligence** web application
- **Drag drop** based **exploring** and **visualizing** data
- A rich set of data visualizations - **50+**



Superset

- Integration with **major authentication providers** (database, OpenID, LDAP, OAuth)



- Support **multiple datastores**

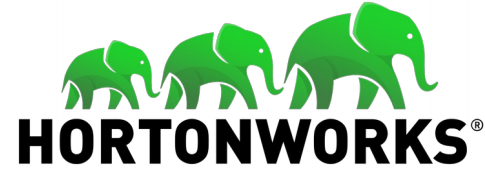


- Cloud native



Superset

- Part of HDP 3.0



- Growing community & penetration



apache / incubator-superset

Watch 1,215 Star 26,368 Fork 5,171

Code Issues 198 Pull requests 54 Actions Projects 3 Security Insights

Apache Superset (incubating) is a modern, enterprise-ready business intelligence web application

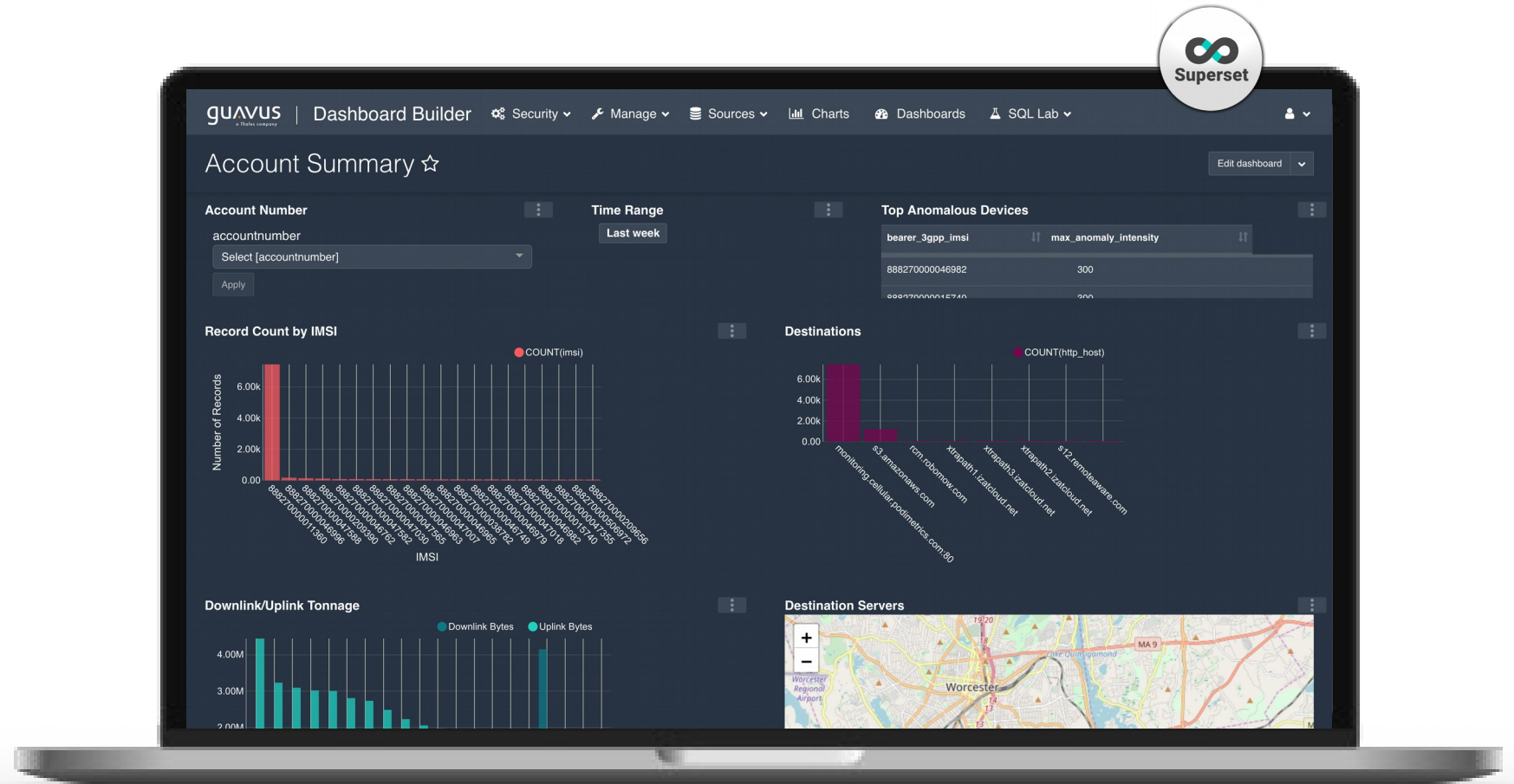
superset

4,467 commits 101 branches 154 releases 414 contributors Apache-2.0

Branch: master New pull request Create new file Upload files Find File Clone or download

Superset based demo

- IOT - Demo



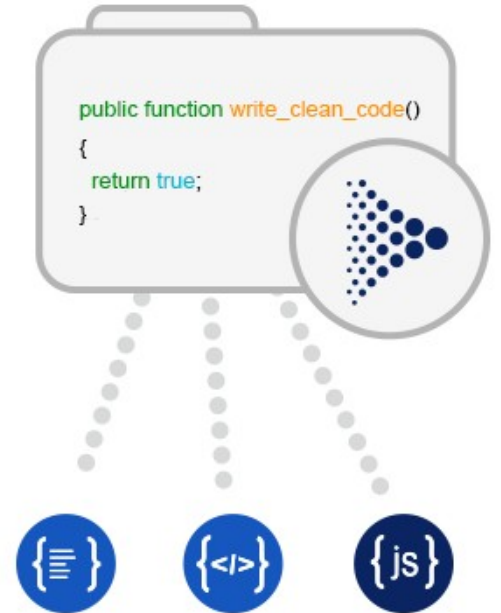
Why to **Use & Contribute** to open



- Time to market



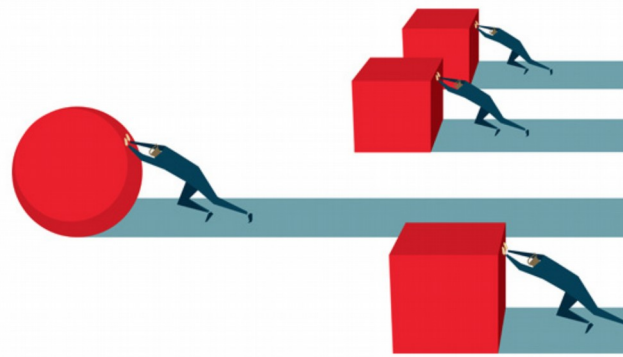
- Improve the Code



- Reduce Costs



- Gain Competitive Advantage



- To Make the Software More Usable



- Excel Your Career



- Support Open Source Values



- Promote Industry Standards

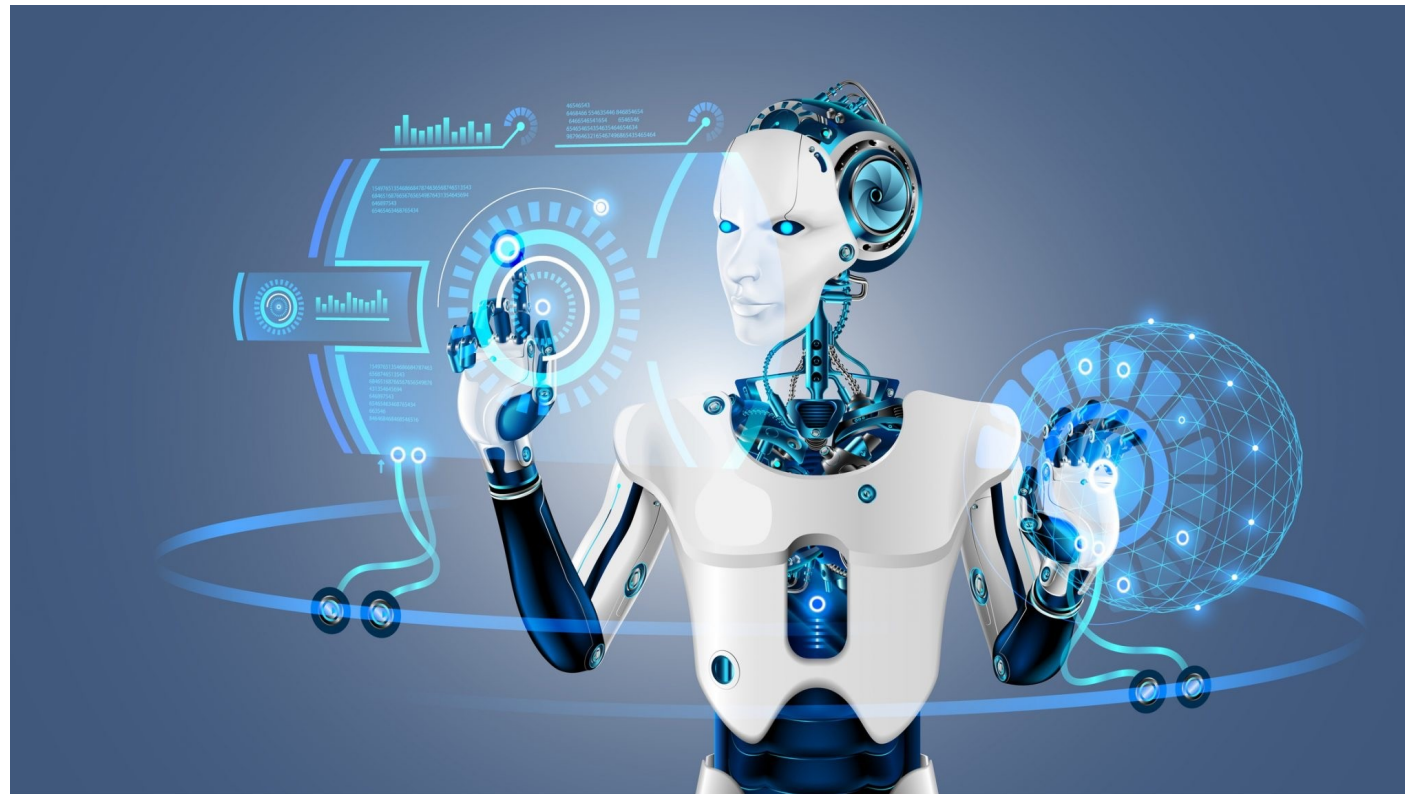


- Give Back

Giving Back To The Community



Design UI for **Future**



- **Plugin architecture** for bringing new items in system
- Use **Micro-frontend** Architecture to plug & play apps
- **Configurable** approach
- **Lightweight** footprint
- **Responsive** UI – tablet, mobile, watch
- Think futuristic – **voice enabled** i.e.





Contact me:

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Company : www.guavus.com | <https://www.thalesgroup.com>

Love to discuss - Any UI/UX problem in Big data space.

Presentation Credits: Guavus learnings, some UX internet links & pictures from internet, referred few blogs etc.