

July 2020

Web Design Brief.

Business and Website Overview

Our company is looking to develop an interactive BMS dashboard and user console that integrates into the existing BMS Web applications.

Our company is an independent building automation provider offering turnkey IoT and cloud-based building network solutions. We deploy these solutions in building management systems across a wide range of property types.

We are an authorised Tridium Systems Integrator & Developer. Tridium is the most commonly used vendor independent BMS in the world and enables entire buildings to constantly improve operation, efficiency and innovation by consolidating multiple systems into a single platform.

The main focus of Our company is

- BMS Maintenance & Service
- IoT and Integration Services
- Energy Efficiency Solutions
- Technology Upgrades
- Custom Building Automation & Integrated Building Services Solutions

Our solutions are delivered Globally. Our expert local teams are backed up by a national support team of product and engineering specialists

Project Objectives

Our objective is to develop an integrated dashboarding console that helps showcase our integrated buildings installations. We operate in a crowded marketplace, but the quality of service we offer puts us head and shoulders above our competition. To advance this, we want to enhance our offering by including a user console which offers end user configurable dashboarding.

The console will need to:

1. Be Responsive
2. Be User intuitive
3. Allow user selectable styles
4. Allow for data integration from varying sources

Target Audience

The target audience for the dashboarding product will be relatively small but diverse including:

- Company Regional Managers
 - Upper Management, accounting focus.
 - Possibly limited IT knowledge.
- Site Operations Managers
 - Middle Management, building operations focused
 - From a multitude of backgrounds, mainly tradesman.
 - Majority limited IT knowledge.
- Site Tradesman
 - Including many trades such as, HVAC mechanics, Electricians, Plumbers, etc.
 - Majority limited IT knowledge.

Project Specific Information

The dashboarding interface will utilize HTML5 and data integration to the BMS system through a JS API which will be supplied along with examples and base data query functions. The initial BMS framework that will utilize the new console and dashboard is Niagara 4.

<https://www.tridium.com/en/products-services/niagara4>

A remote Niagara environment will be supplied for testing and development purposes.

Future additions will include enhancements to the above, plus

- Integration to 3rd party systems utilizing web services
- Integration 3rd party databases.
- Reporting feature with
 - Pre-defined reports.
 - User customizable reports.

Website Features & Objectives

Our user dashboarding console should contain at least the following features. Additional feature suggestions are welcome.

- Display essential data query/points on landing page.
- Display current active users and chat dependent on user configuration on landing page.
- Display pre-configured dashboards by user type.
- Allow for creation of user configured dashboards.
- Wizard to build query for data selection on dashboard widget creation.
- Allow for download of widget data records in csv format.

We would like users to engage in the following activities on our dashboarding console.

- General View Only User:
 - View & Interact with User Console.
 - View dashboards dependent on user rights.
 - Download resources dependent on user rights.
- General Interactive User:
 - View & Interact with User Console.
 - View, modify, create & save personal dashboards. Configuration information to be saved on backend.
 - Download resources dependent on user rights.
- Operations User:
 - View & Interact with User Console.
 - View, modify, create & save dashboards for personal & general templated users. Configuration information to be saved on backend.
 - Download resources dependent on user rights.

Competitor Solutions

Existing solutions include

Periscope

- <https://www.periscopedashboard.com/views-viewlets/>
- Pros
 - Includes dashboard, equipment/standard BMS graphics page display
 - Site Map feature.
 - Iframe for custom after deployment features.
 - Alarm Timeline
 - Viewlets include
 - Demand Duration
 - Baseline Comparison
 - Alarm Timeline
 - Energy Profile
 - Network Device with hierarchy. See example 1.5 Network Device Connections. Note: Not shown as example in link above.
- Cons
 - Upgrades and customization dependent on 3rd party.
 - Multi-vendor.
 - Data integrations limited.

N4 View Builder

- <https://www.wse-ltd.com/product-services/dashboards/niagara-dashboard-templates.html>
- Pros
 - User selectable color themes.
 - Navigation Menu.
 - Drag n' Drop Widgets.
 - Responsive interface.
 - Includes mobile views.
 - Can include individual equipment graphic in dashboard.
- Cons
 - Upgrades and customization dependent on 3rd party.
 - Multi-vendor.
 - N4 Only.

DGLux5

- <https://www.dglogik.com/products/dglux-for-niagara>
- Pros
 - Look and feel.
 - Mobile view feature.
- Cons
 - N4 Only
 - Complex to setup.
 - Not user configurable.

Our company is looking to provide an easily customizable user experience that is unique in its ability to allow end users to configure professional looking dashboards.

Website Scope

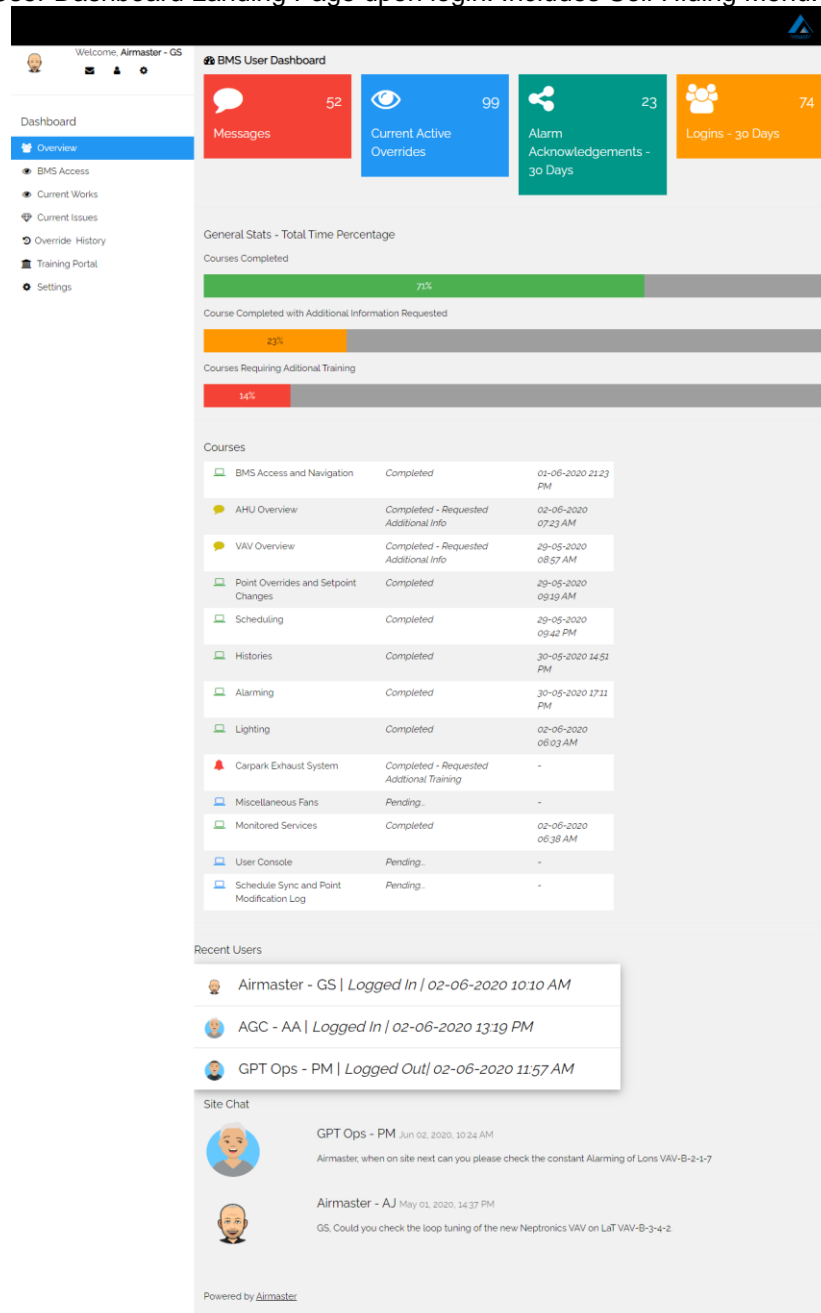
The website will contain the following navigation structure. Each item should be selectable dependant on user rights. Alternative suggestions on page structure are encouraged and additional items should be easily added in future.

- User Console – Landing Page upon initial login.
- Dashboards.
 - Pre-configured Dashboards.
 - User configured Dashboards.
- BMS Graphics Access.
- Reporting.
- Training Portal.
- Settings.

Base Content Requirements

Initial base content require will be

- 3 x Complete Pages
 - User Dashboard Landing Page upon login. Includes Self Hiding Menu.



- Dashboarding Page. Including
 - Menu. Can toggle visibility.
 - View Only
 - Edit – Save user configuration to backend. API and example will be supplied.
 - New Dashboard– Save user configuration to backend. API and example will be supplied.
 - Kiosk Mode

- In relation to widgets, it should have the ability to add new, move, rearrange, resize, anchor location, lock resize, reactive to view PC or mobile, individual settings for each widget such as point data, time range, title, units including all setting required by each widget. Up to 10 points/point queries pre widget where available.
 - Example of base functionality.
<https://gridstackjs.com/demo/advance.html>
 - Point data will have a wizard pop out to allow ease of end user widget setup. This will be defined separately.
- Example Dashboard View below. At least 2 themes dark and light required.

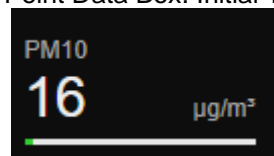


<https://play.grafana.org/d/000000012/grafana-play-home>

- 10 x Widgets. Settings and data selectable within dashboard. JS required to integrate to BMS data. API for integration plus examples will be supplied. Widgets must have themes as per the dashboard.
 - 1.1. Forecast data box. Initially weather only. But option to change internal data box to other data, such as air quality.

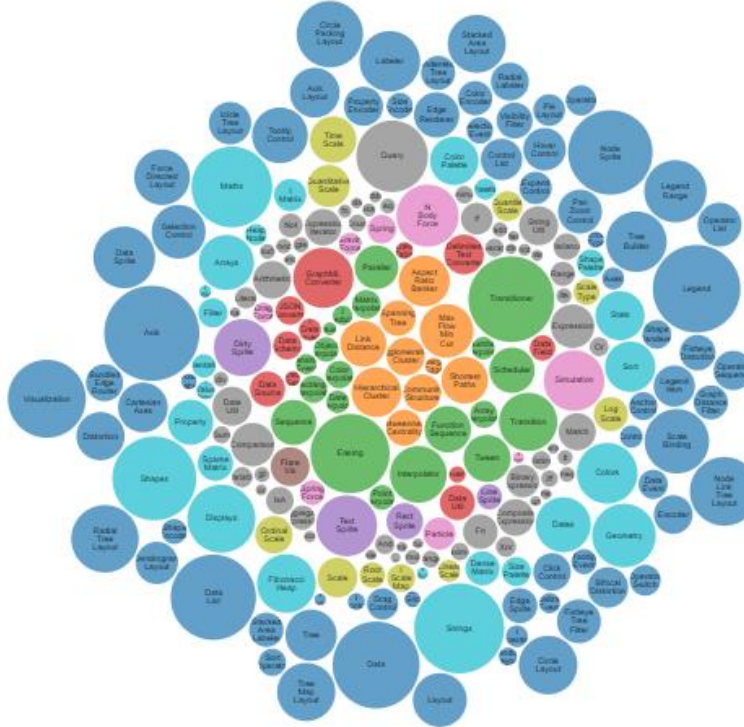


- 1.2. Point Data Box. Initial Title and units obtained from data returned.



Bubble Chart

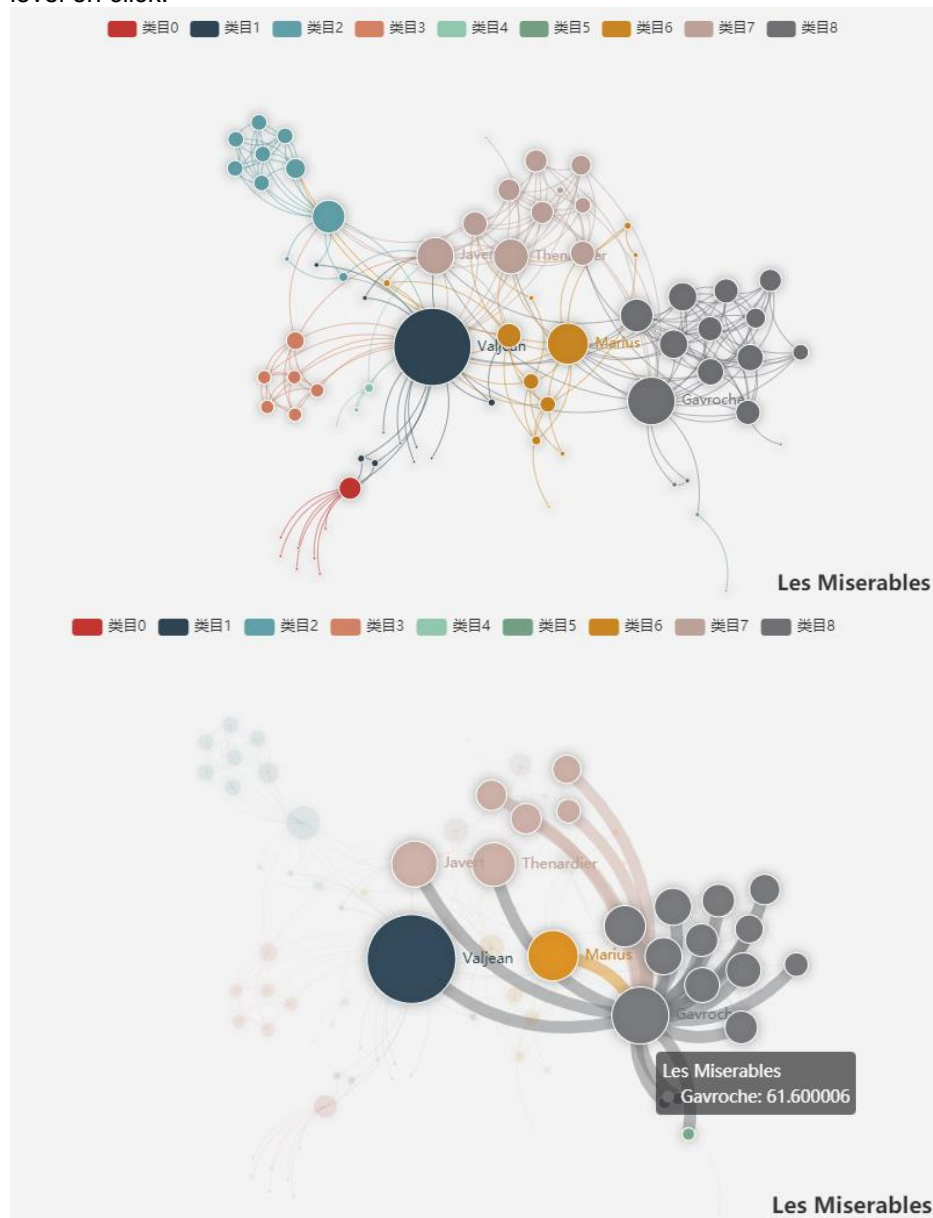
Bubble charts are non-hierarchical [packed circles](#). The area of each circle is proportional its value (here, file size). The organic appearance of these diagrams can be intriguing, but also consider a [treemap](#) or a humble [bar chart](#).



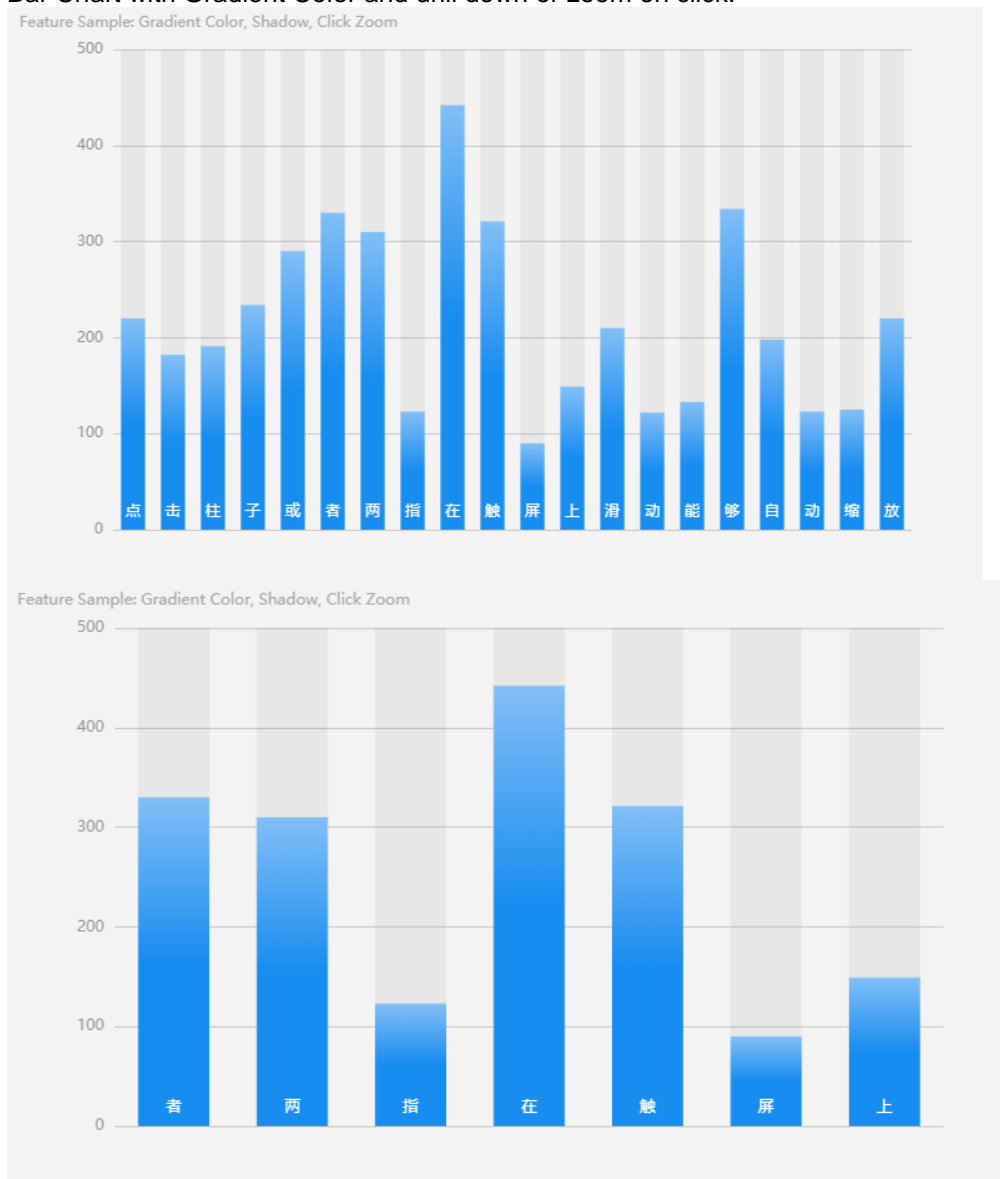
- 1.4. Alarm Timeline. Selects top 10 alarms for time range selected. Can exclude alarm types.



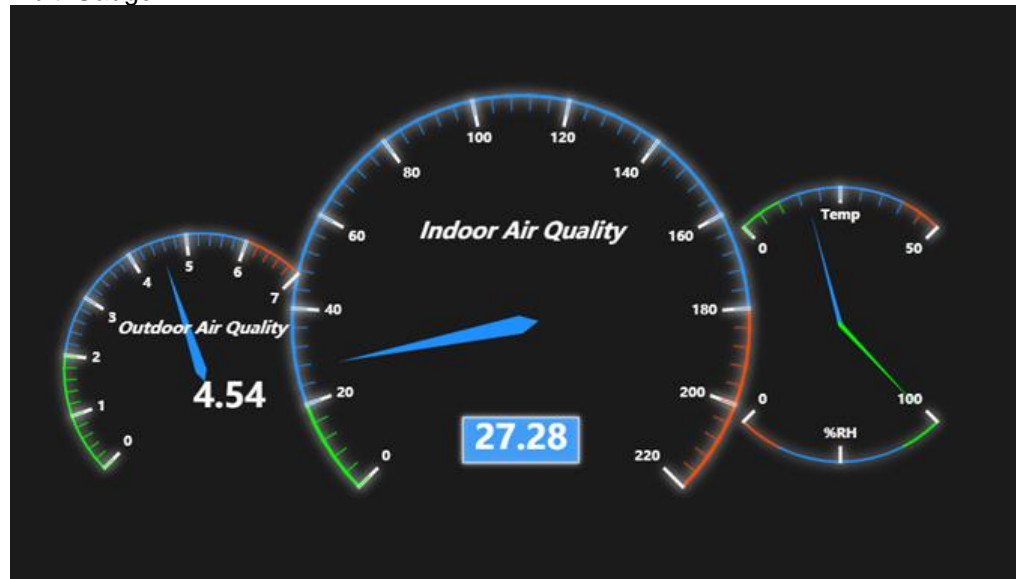
- 1.5. Network Device Connections, including direct communication lines. Drill down to site field level on click.



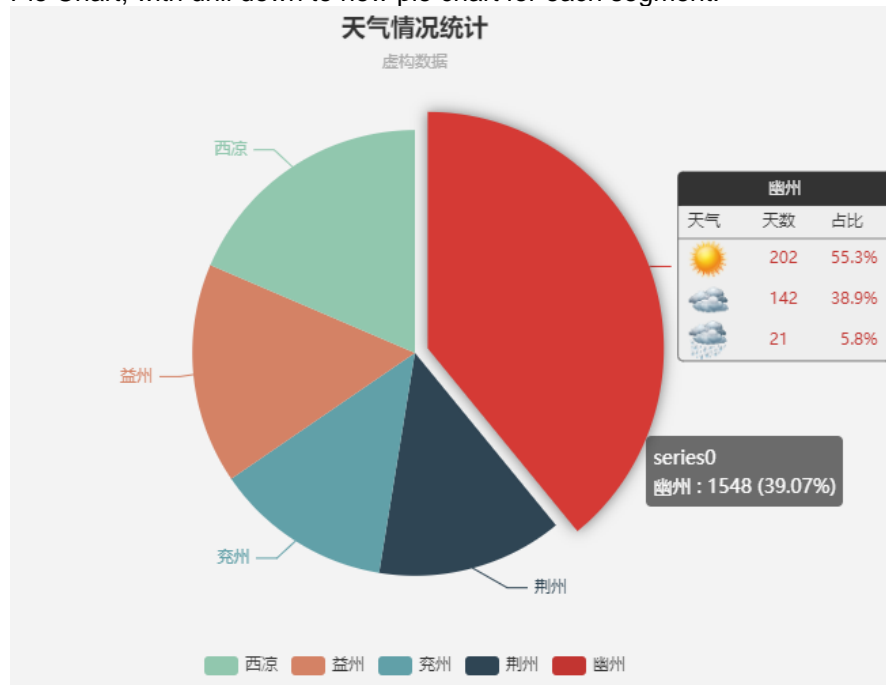
1.6. Bar Chart with Gradient Color and drill down or zoom on click.



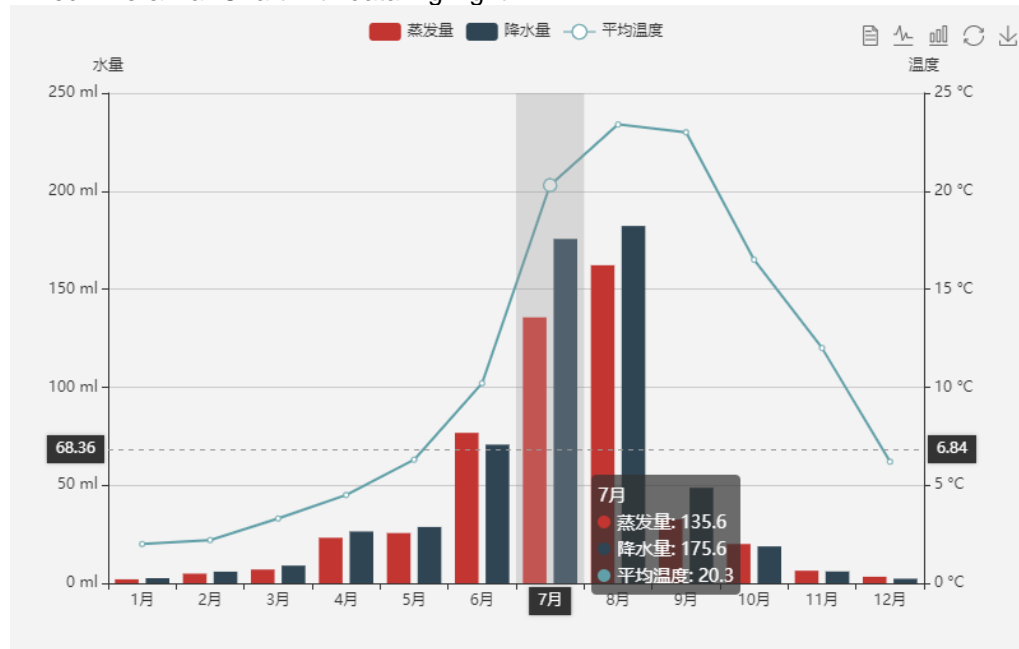
1.7. Multi Gauge.



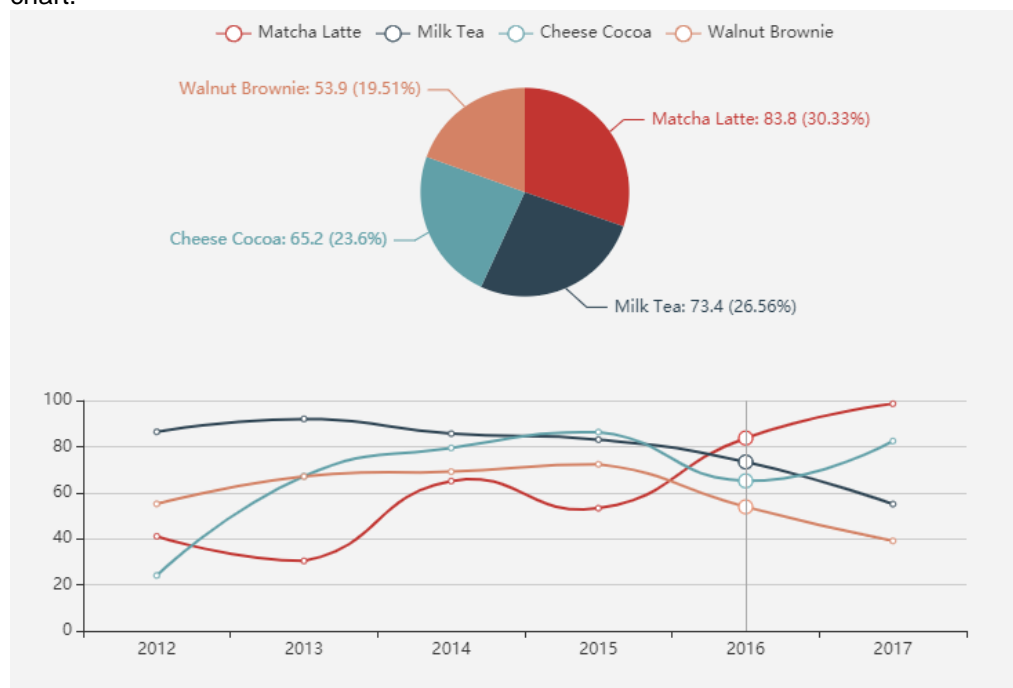
1.8. Pie Chart, with drill down to new pie chart for each segment.



1.9. Mixed Line & Bar Chart with data highlight.



1.10. Combination Pie and Line Chart. Pie chart dynamically updates to point selected on line chart.



Above examples from

- <https://echarts.apache.org/examples/en/index.html#chart-type-tree>
- <https://observablehq.com/@d3/gallery>
- Alarm Timeline example - <https://www.periscopedashboard.com/portfolio/alarm-timeline-2/>

Project Timeline

We are looking to move ahead as soon as possible with the above.

Please advise the expected timeline for completion of each stage and indicate where parallels may occur.

The widgets can be delivered in a staggered manner according to a priority that is yet to be determined.

Measures of Success

We have has not yet defined metrics for success and will do so in collaboration with our vendor.

Contact Information

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