

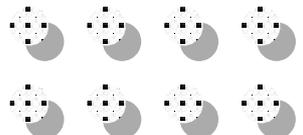


Principes des métriques & sondes

ANF 2024 - Marseille
17 Octobre 2024

Plan

1. Présentation des types de données de monitoring
2. Focus sur l'architecture
3. Exemple de configuration des outils de metrics
4. Exploitation de visualisation
5. Détails sur les metrics



1. Types de données de monitoring

Metrics

- TimeSeries Database

Database : Prometheus, InfluxDB

Traces

- système de traçage distribué

Database: Zipkins, Jaeger

Les logs

- agrégateur de logs

Database: Loki

Visualisation

- Grafana

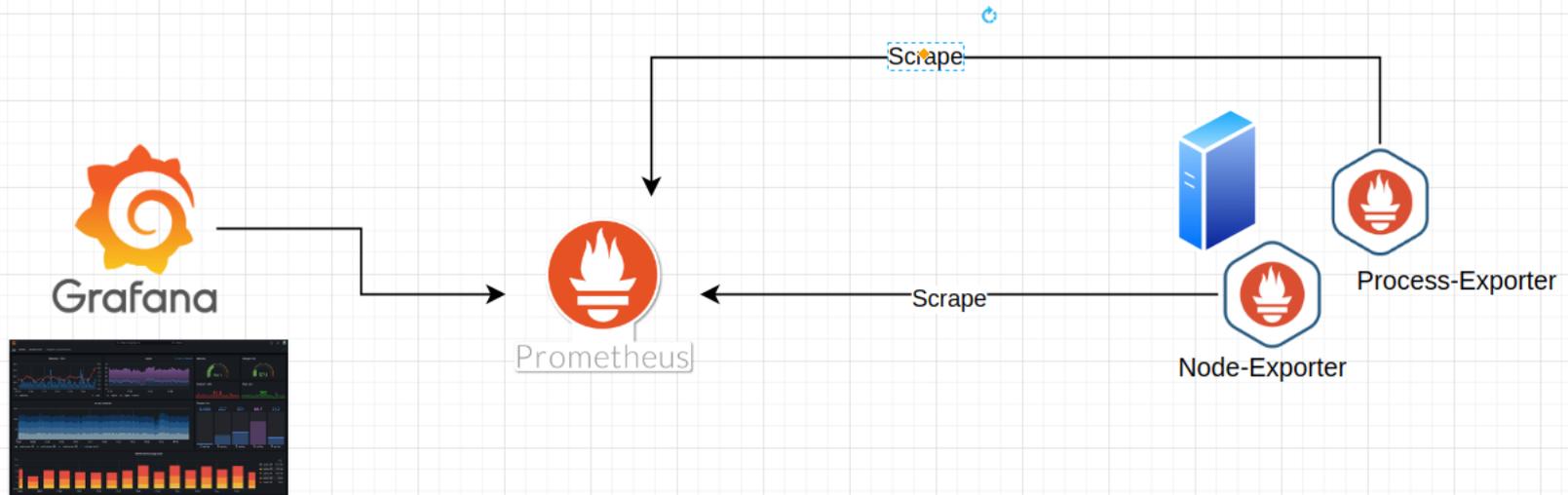
Metrics - logs - alertes

2. Focus sur les métriques



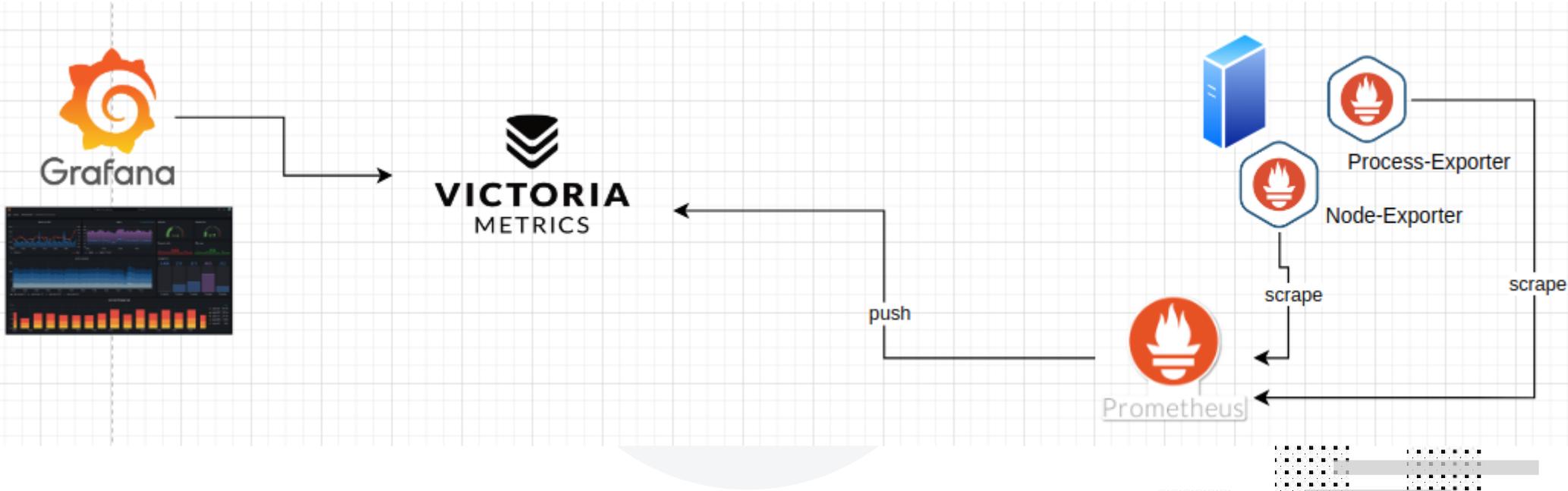
Logique architectural

Exploitation générale



Logique architectural

Possible d'exporter les metrics vers un autre prometheus



Exemple d'un retour d'un exporter

TYPE up untyped

HELP node_timex_pps_jitter_total Pulse per second count of jitter limit exceeded events.

TYPE node_timex_pps_jitter_total **counter**

node_timex_pps_jitter_total 0

HELP node_timex_pps_shift_seconds Pulse per second interval duration.

TYPE node_timex_pps_shift_seconds **gauge**

node_timex_pps_shift_seconds 0

3. Exemple de configuration des outils de metrics



Exemple configuration d'un process exporter

Lance un service qui
écoute sur le port
9256

```
1 process_names:
2   - exe:
3     - /opt/gitlab/embedded/bin/gitlab-pages
4     - /opt/gitlab/embedded/bin/mattermost
5     - /opt/gitlab/embedded/bin/postgres
6     - /sbin/iscsid
7   - comm:
8     - redis-server
9   - exe:
10    - ruby
11    cmdline:
12    - '.*mail_room.*'
```

Configuration scrappe

```
prometheus['scrape_configs'] = [  
  {  
    'job_name': 'process-exporter',  
    'static_configs' => [  
      'targets' => ['localhost:9256'],  
    ]  
  }  
]
```

Configuration remote_write

```
prometheus['remote_write'] = [  
  {  
    url: 'https://*****.math.cnrs.fr/api/v1/write',  
    ....  
  }  
]
```

4. Exploitation de visualisation



Liaison avec les base de données

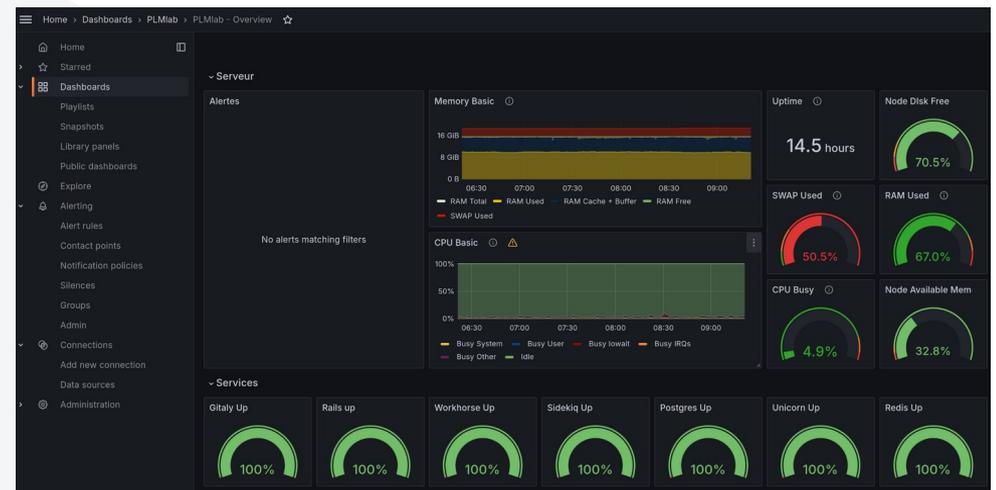
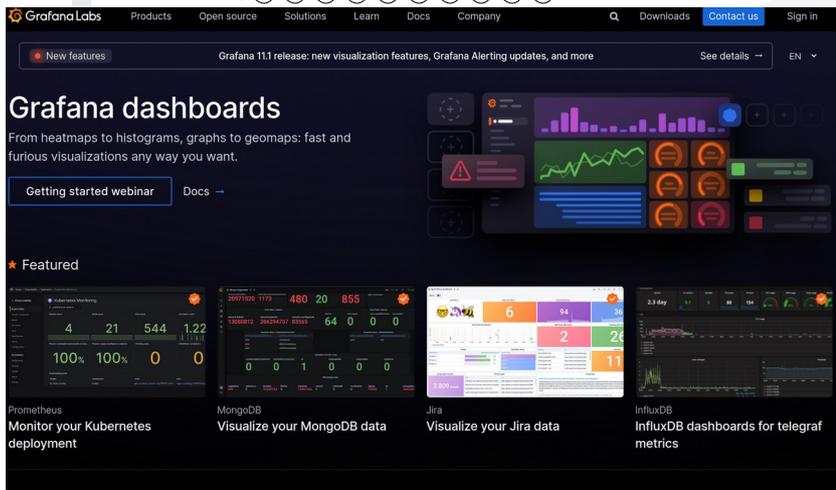
The screenshot shows the Grafana 'Data sources' configuration page. The left sidebar contains navigation options: Home, Starred, Dashboards, Playlists, Snapshot, Library panels, Public dashboards, Explore, Alerting, Alert rules, Contact points, Notification policies, Silences, Groups, Admin, **Connections**, Add new connection, **Data sources**, and Administration. The main content area is titled 'Data sources' and includes a search bar 'Search by name or type'. Below the search bar, five data source connections are listed:

- logs.gricad**: Loki | <https://logs.gricad.com:31000/loki/cloud.math.cnrs.fr>
- logs.virtualdata**: Loki | <https://logs.virtualdata.com:31000/loki/math.cnrs.fr>
- metrics.gricad**: Prometheus | <https://metrics.gricad.com:9090/prometheus/cloud.math.cnrs.fr>
- metrics.virtualdata**: Prometheus | <https://metrics.virtualdata.com:9090/prometheus/math.cnrs.fr> | **default**
- virtualdata-local**: Prometheus | <http://localhost:9090/prometheus-server:8428>

Dashboards

Importer des dashboards
existant

Ou les faire vous-même

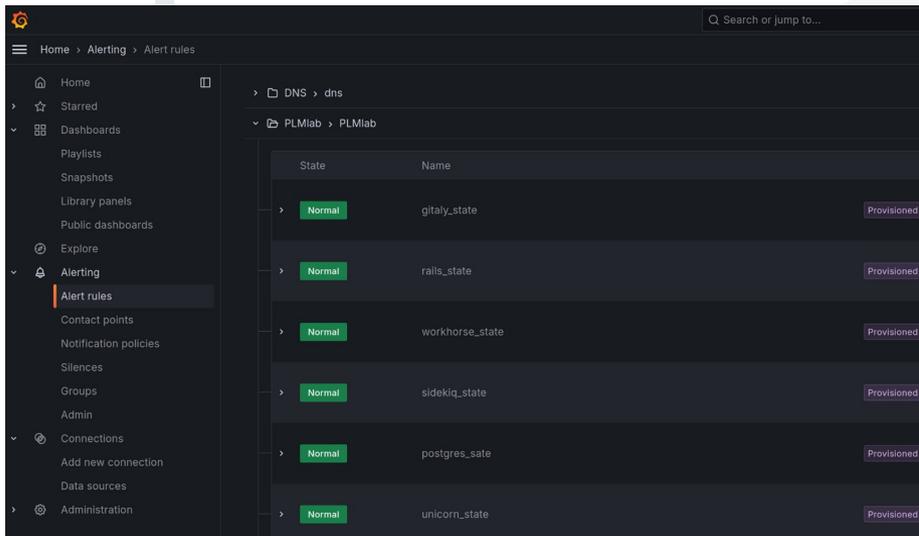


<https://grafana.com/grafana/dashboards/>

Alertes

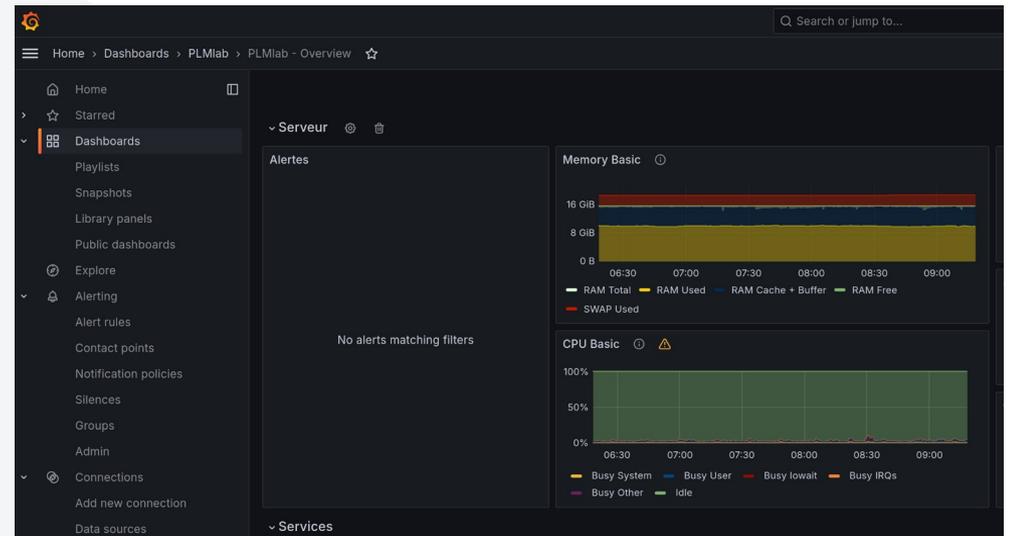
Règles d'alertes...

Visualisable dans les
dashboards



The screenshot shows the Grafana Alerting rules configuration page. The breadcrumb navigation is "Home > Alerting > Alert rules". The left sidebar shows the "Alerting" section expanded to "Alert rules". The main content area displays a table of alert rules for the "PLMLab" dashboard.

State	Name	Provisioned
Normal	gitally_state	Provisioned
Normal	rails_state	Provisioned
Normal	workhorse_state	Provisioned
Normal	sidekiq_state	Provisioned
Normal	postgres_state	Provisioned
Normal	unicorn_state	Provisioned



The screenshot shows a Grafana dashboard for "PLMLab - Overview". The breadcrumb navigation is "Home > Dashboards > PLMLab > PLMLab - Overview". The left sidebar shows the "Dashboards" section expanded to "PLMLab". The main content area displays a "Serveur" dashboard with a "Alertes" panel and two system metrics panels.

The "Alertes" panel shows "No alerts matching filters".

The "Memory Basic" panel shows a bar chart of memory usage from 06:30 to 09:00. The legend includes RAM Total, RAM Used, RAM Cache + Buffer, RAM Free, and SWAP Used.

The "CPU Basic" panel shows a line chart of CPU usage from 06:30 to 09:00. The legend includes Busy System, Busy User, Busy lowlat, Busy IRQs, Busy Other, and Idle.

5. Détails sur les metrics



Différents type de metrics

- Counter
- Gauge
- Histogram
- Summary
- ...

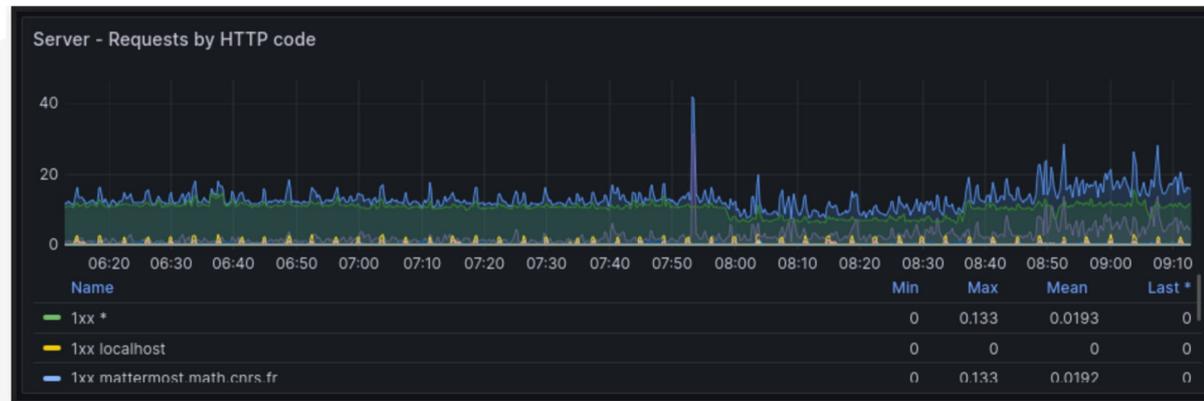
https://prometheus.io/docs/concepts/metric_types/

Counter : Valeur incrémentée

Deux fonctions principales :

- **Rate** : mesure une moyenne
- **Increase** : mesure une augmentation

Graphe : TimeSeries (graphe évolutif)



Gauge: Valeur instantanée

Deux fonctions principales :

- **Delta** : différence entre deux valeurs
- **Deriv** : augmentation par seconde

Graphe : Gauge, tableau, texte

