

Giving away your secrets: Opening metrics up to users

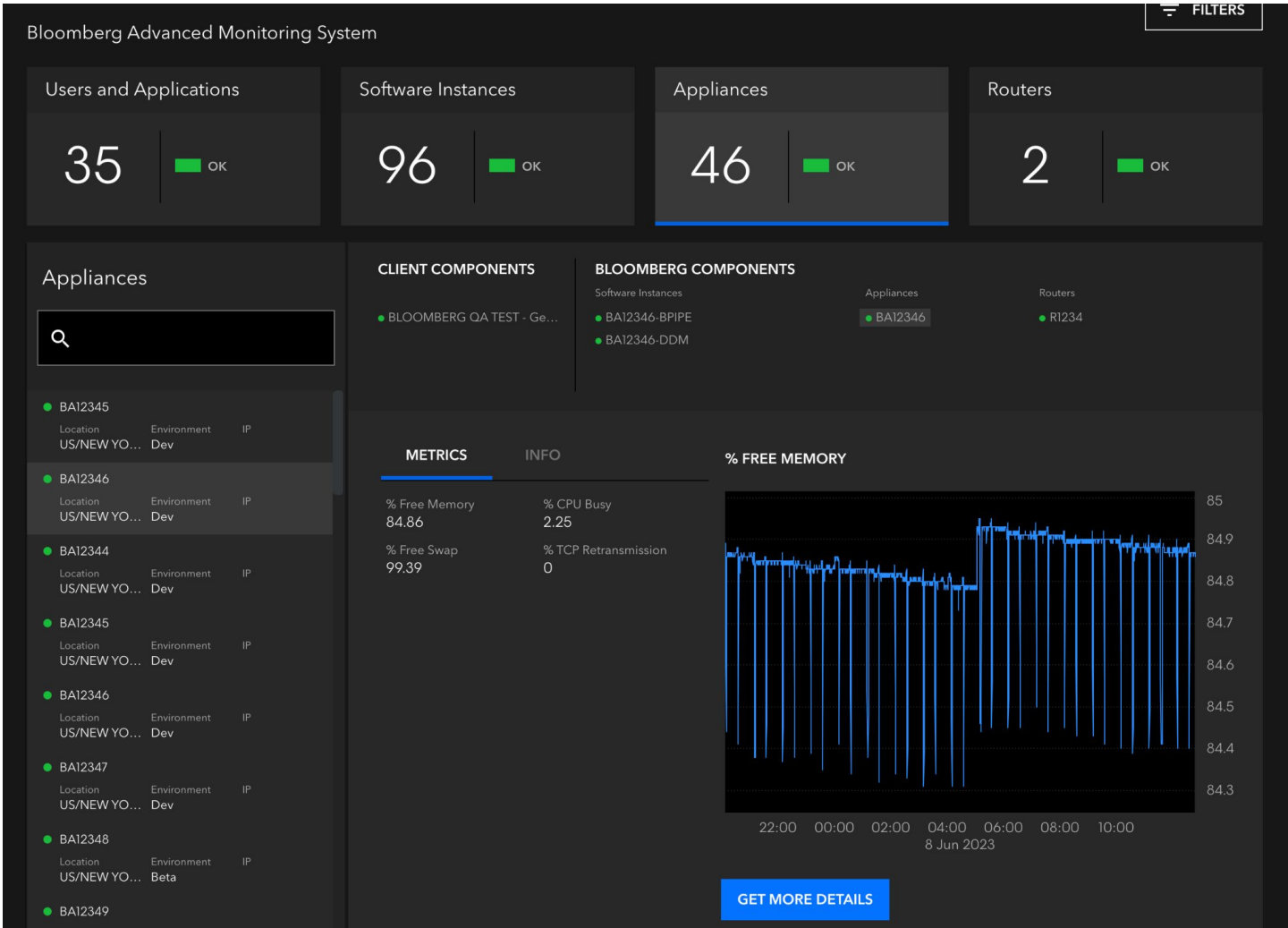
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SREcon23 Asia/Pacific
June 15, 2023

Alexander Ananiadis
Team Lead, Internal Notification and Triage Services,
Market Data Capacity & Latency Engineering

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Setting Expectations

This talk is NOT:

- Metrics/Instrumentation 101
- Setting up Prometheus, Telegraf, etc.

This talk IS:

- System-level architecture and design
- Tool and platform agnostic



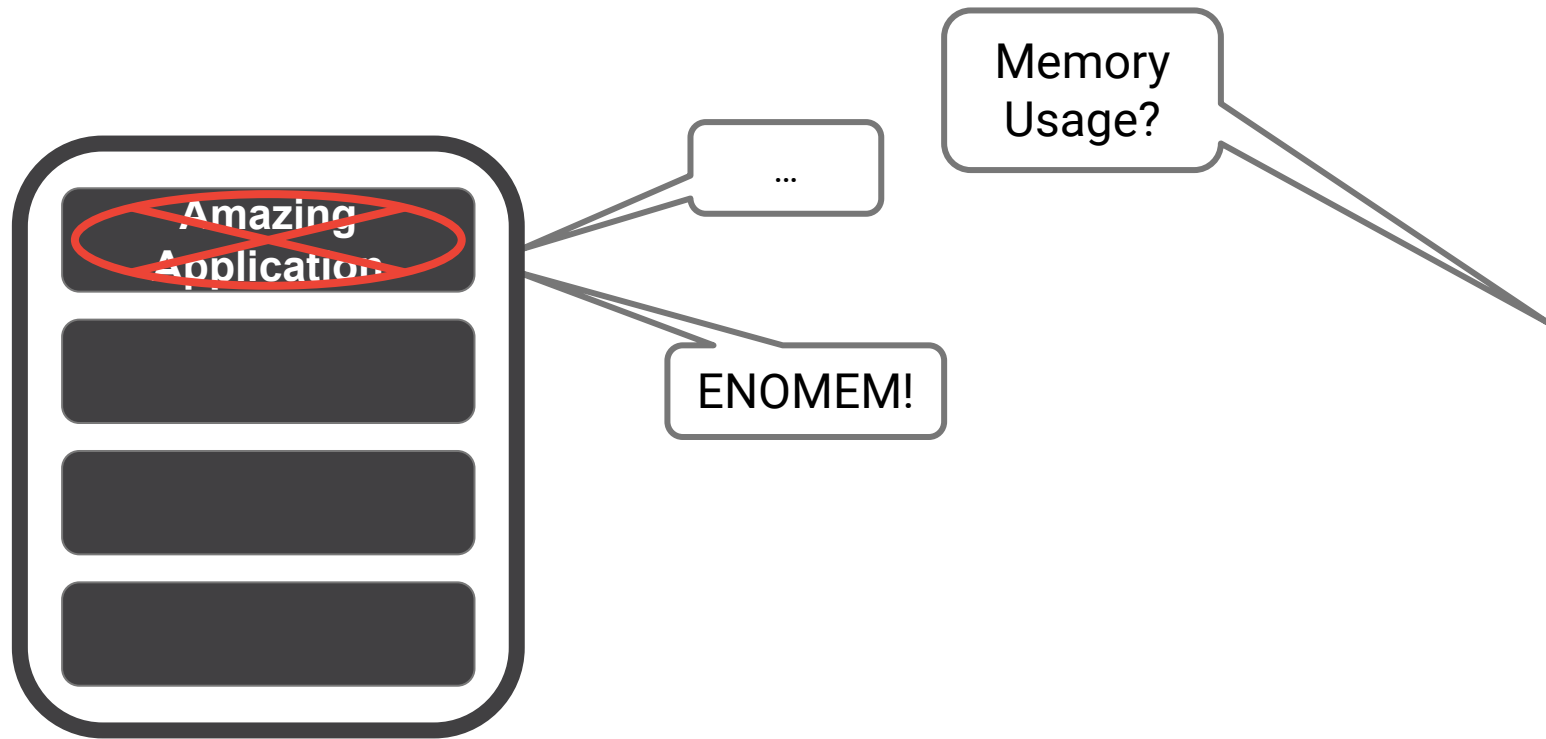
Why?

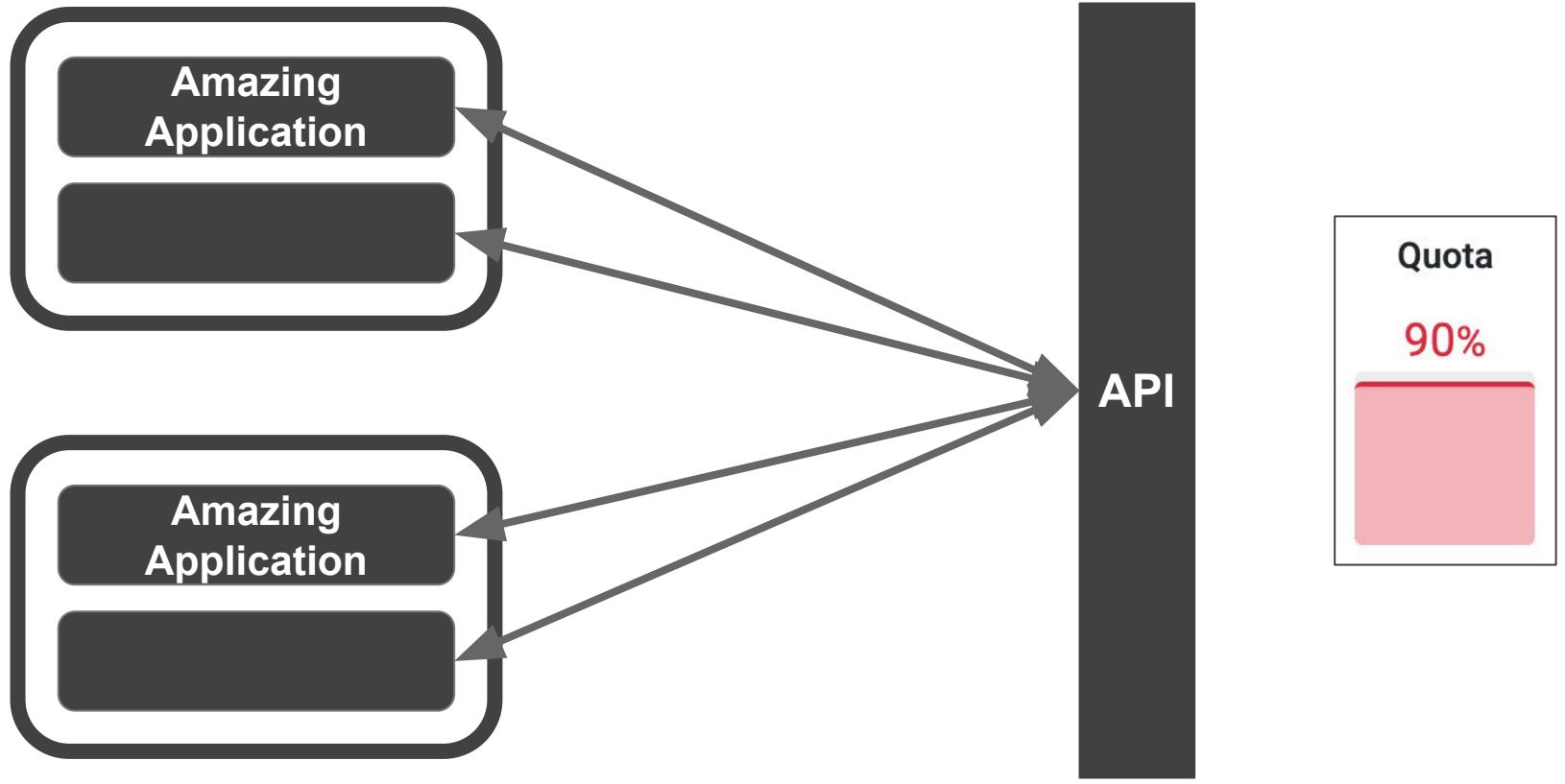
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Why?

- Clients want to monitor resources they control
 - Applications, containers, VMs, individual users...
- They may even *demand* it
- Transparency reduces support costs
 - Self-service diagnosis
 - Faster resolution

Prerequisites

- You have metrics
 - Produced and stored... somewhere
- You have users
 - They don't have to be external
 - e.g., internal Managed Services

```
metrics.counter(  
    "application.msgSent",  
    1,  
    tags=[legacyAppId, 1234]  
)
```




How?


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Status Boards

All Systems Operational 	
API Gateway	Subscriptions
OK	OK
Batch Processing	Message Delivery
OK	OK
Support Site	Webhooks
OK	OK




Status Boards

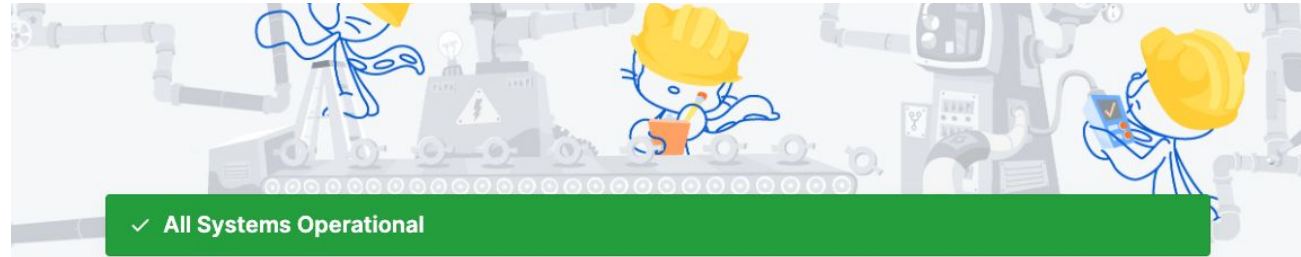
Partial Outage ⚠️	
API Gateway	Subscriptions
OK	OK
Batch Processing ▾	Message Delivery
Degraded	OK
Support Site	Webhooks
OK	OK

We're on it!

Status Boards

All Systems Operational 	
API Gateway	Subscriptions
OK	OK
Batch Processing	Message Delivery
OK	OK
Support Site	Webhooks
OK	OK

All better!



✓ All Systems Operational

Current status

Git Operations ? Normal	✓	API Requests ? Normal	✓
Webhooks ? Normal	✓	Issues ? Normal	✓
Pull Requests ? Normal	✓	Actions ? Normal	✓
Packages ? Normal	✓	Pages ? Normal	✓
Codespaces ? Normal	✓	Copilot Normal	✓

[Incident History >](#)

<https://www.githubstatus.com>

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Slack is up and running

Having trouble? [Troubleshoot connection issues](#) or email us at feedback@slack.com.

Current Status by Service		No Issues	Maintenance	Notice	Incident	Outage
Login/SSO No issues		Connections No issues				
Messaging No issues		Files No issues				
Notifications No issues		Huddles No issues				
Search No issues		Apps/Integrations/APIs No issues				
Workspace/Org Administration No issues		Workflows No issues				
Canvases No issues						

<https://status.slack.com>

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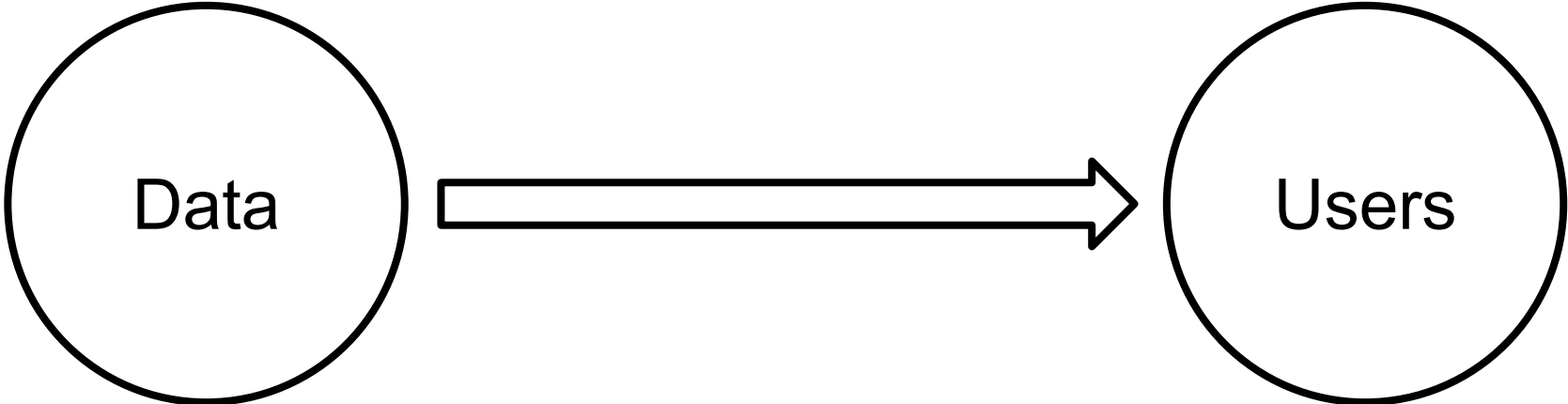
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Status Boards

- Broad visibility rather than granularity
- Most opinionated
- Less helpful for self-service solutions

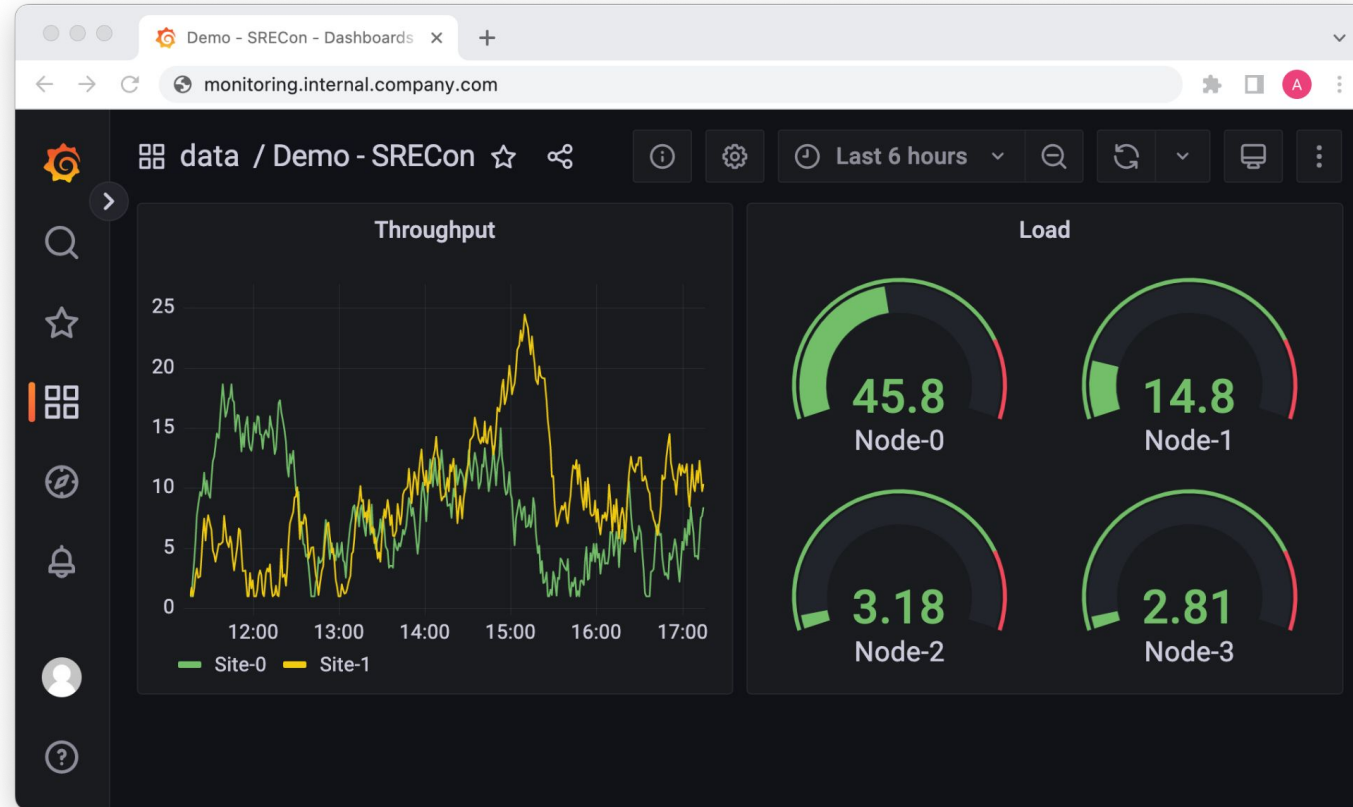


Direct Access



Direct Access

monitoring.internal.company.com



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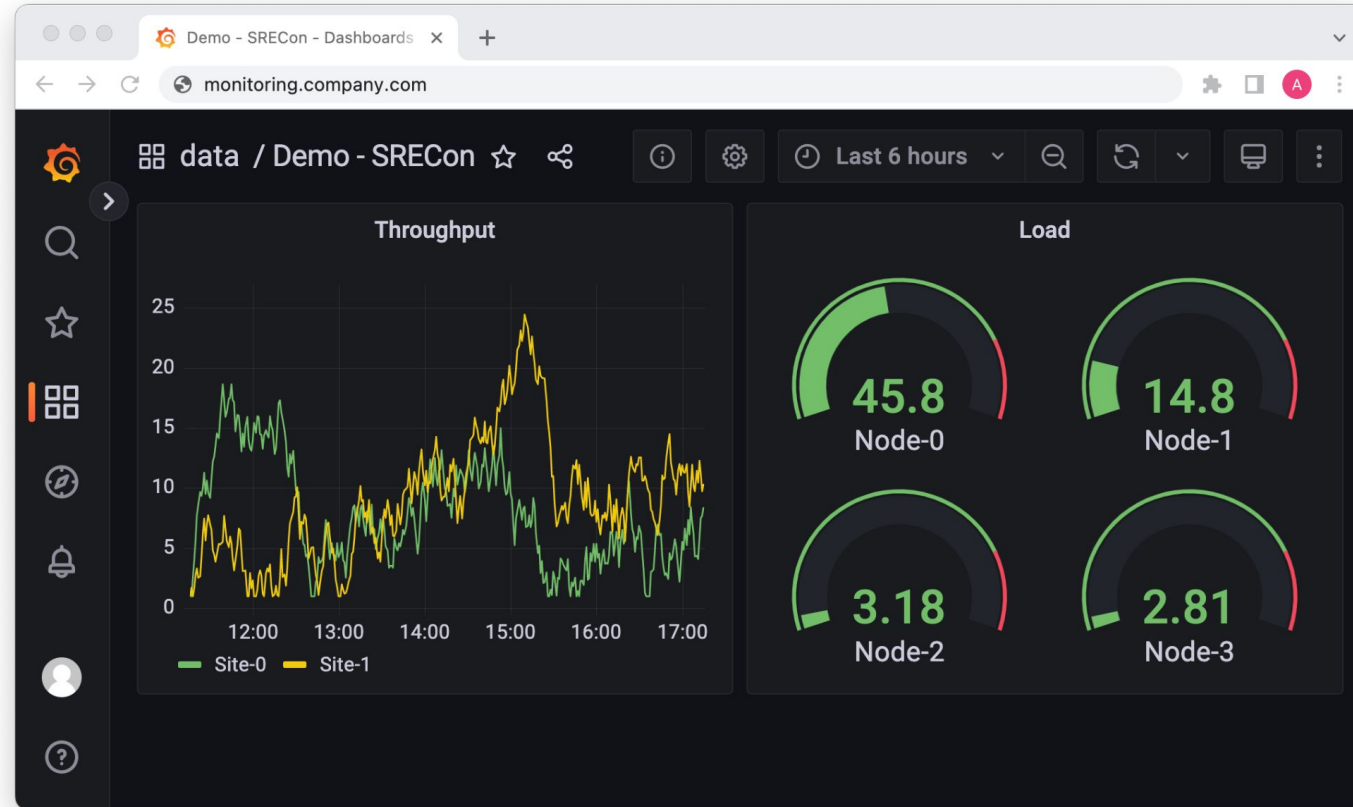
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{owner=Bloomberg-desk1} → {namespace=bloomberg, instance=desk1}

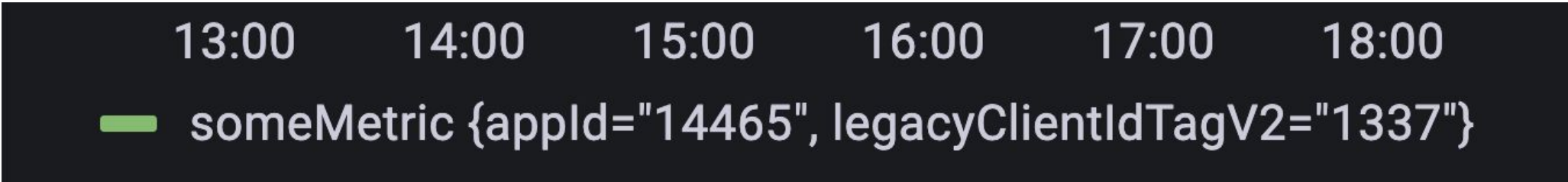
% free memory → % **used** memory

Direct Access

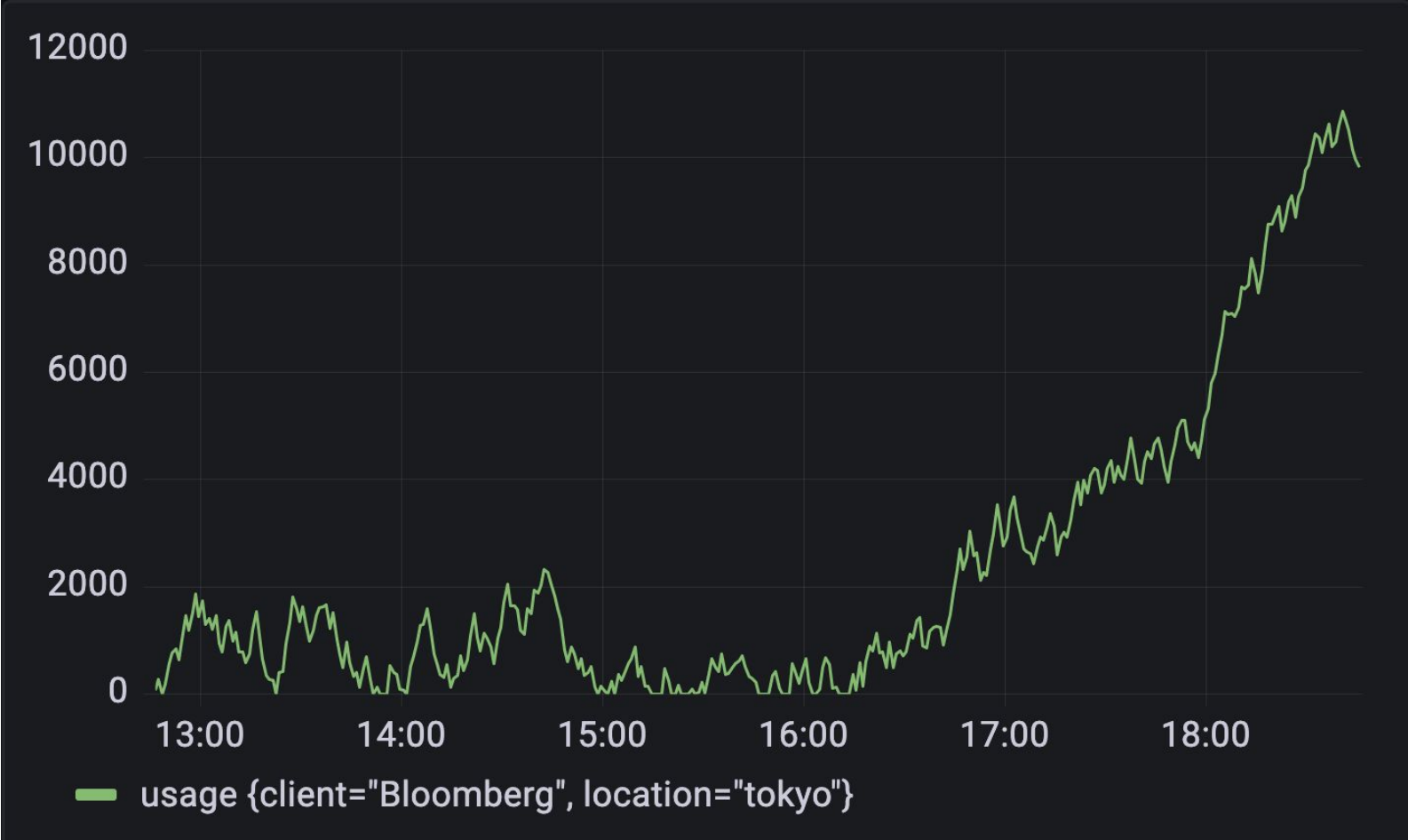
Internal implementation = public contract



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Is it worth it?

Maybe



No direct access?
Produce new metrics

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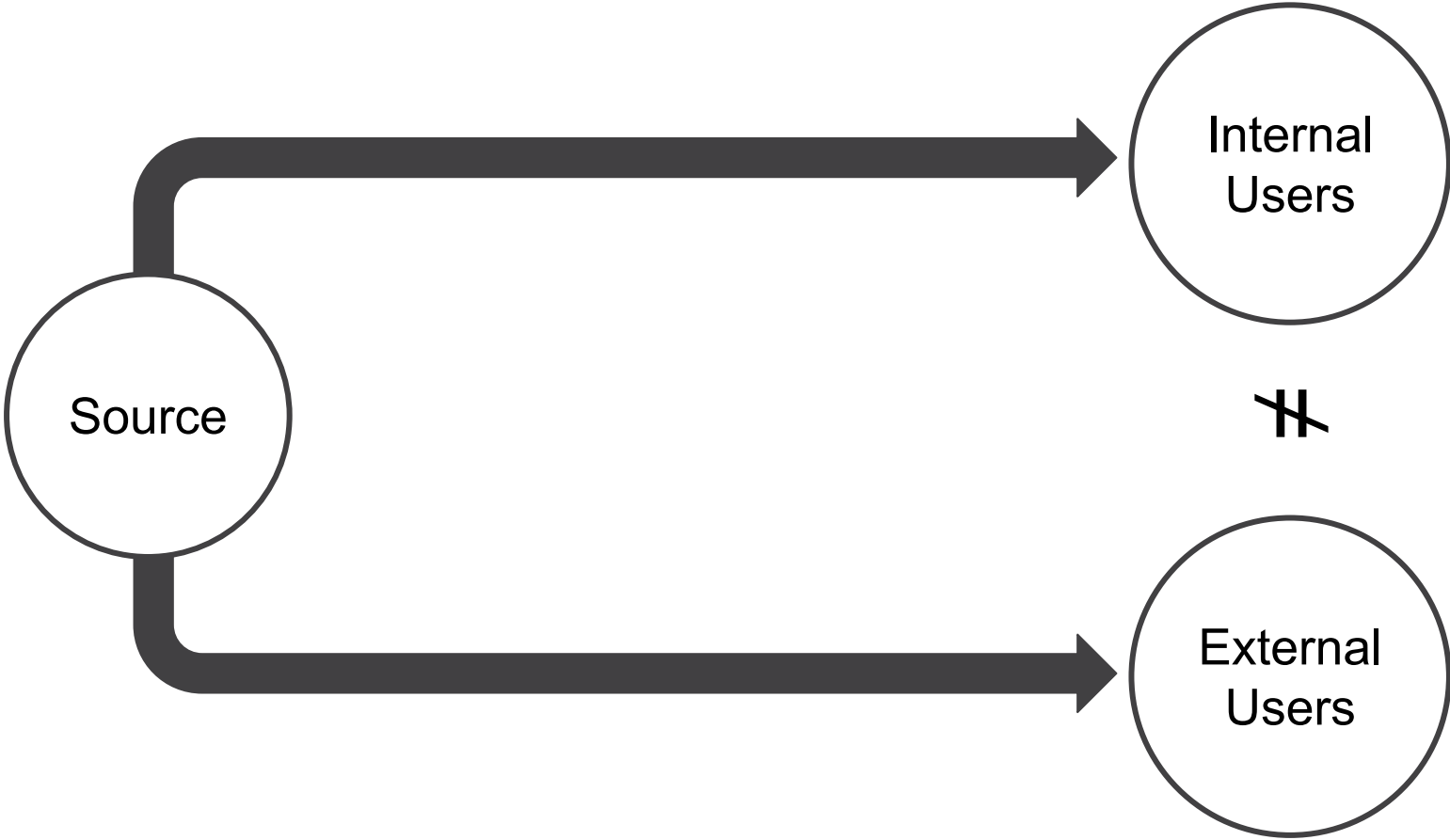
Bespoke Metrics

```
metrics.counter(  
    "application.msgSent", 1,  
    tags=[legacyAppId, 1234]  
)
```



```
metrics.counter(  
    "messageSent", 1,  
    tags=[visibleName, "BloombergApp"]  
)
```

Bespoke Metrics



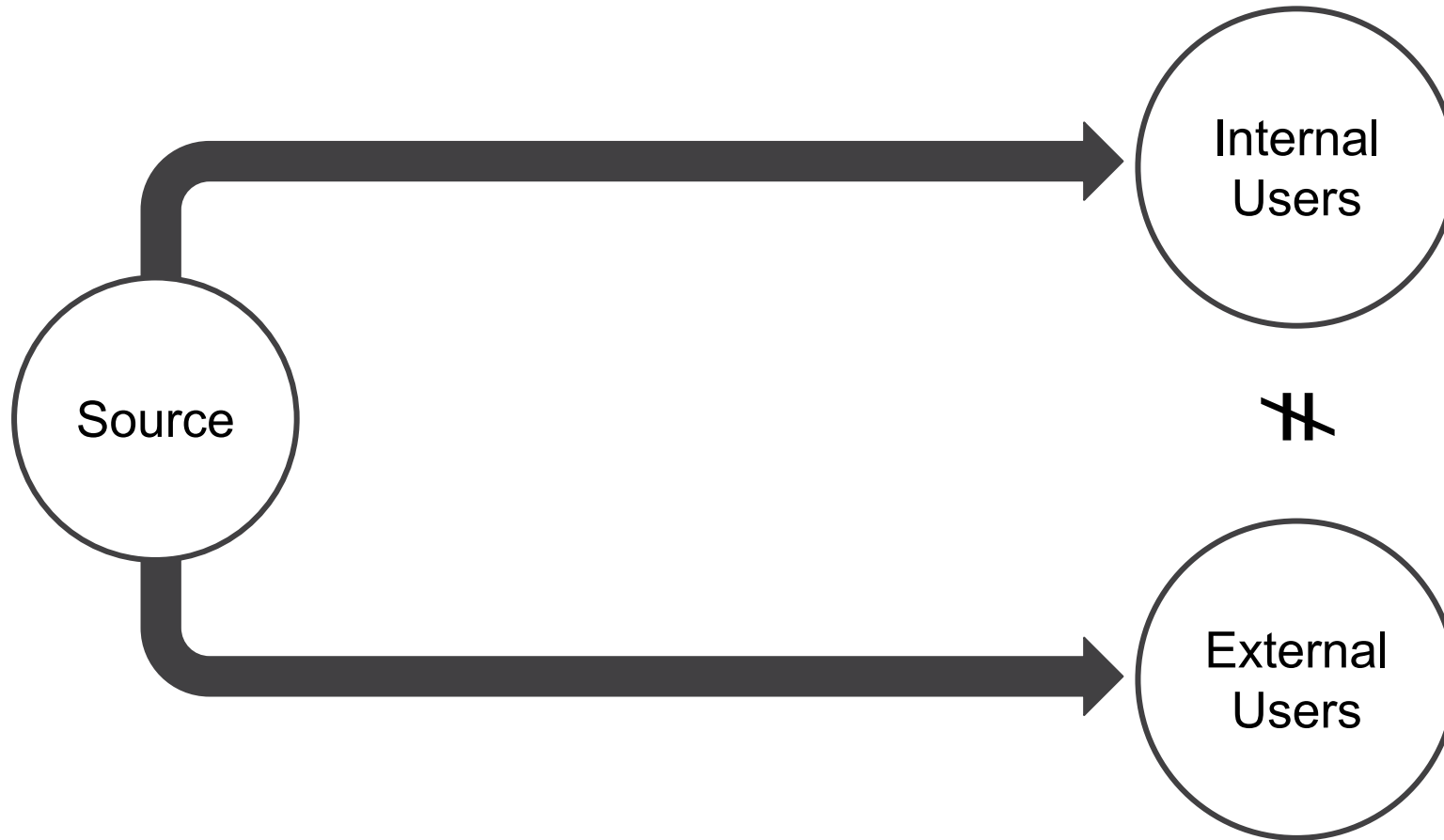
No direct access?
No bespoke metrics?

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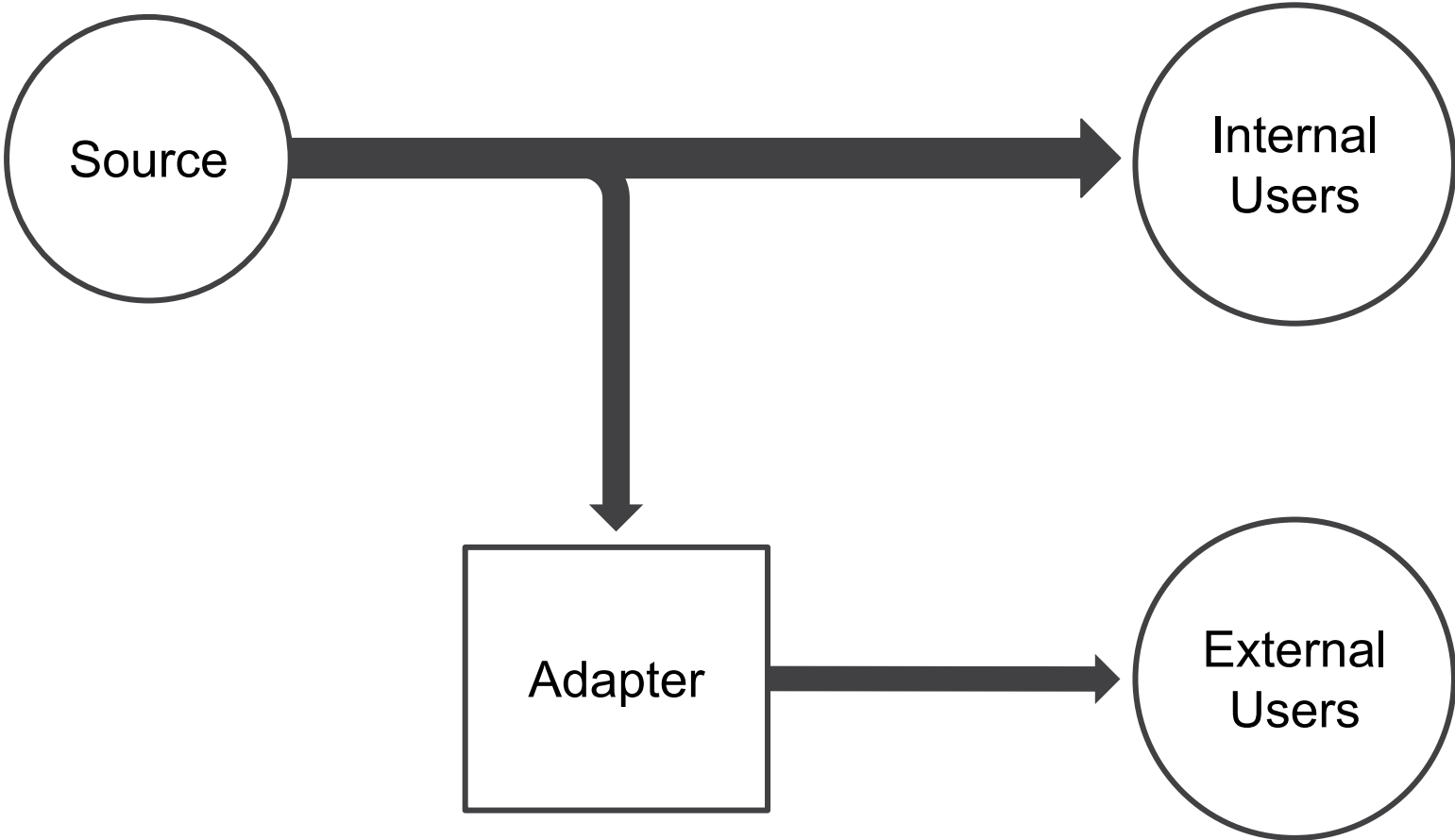
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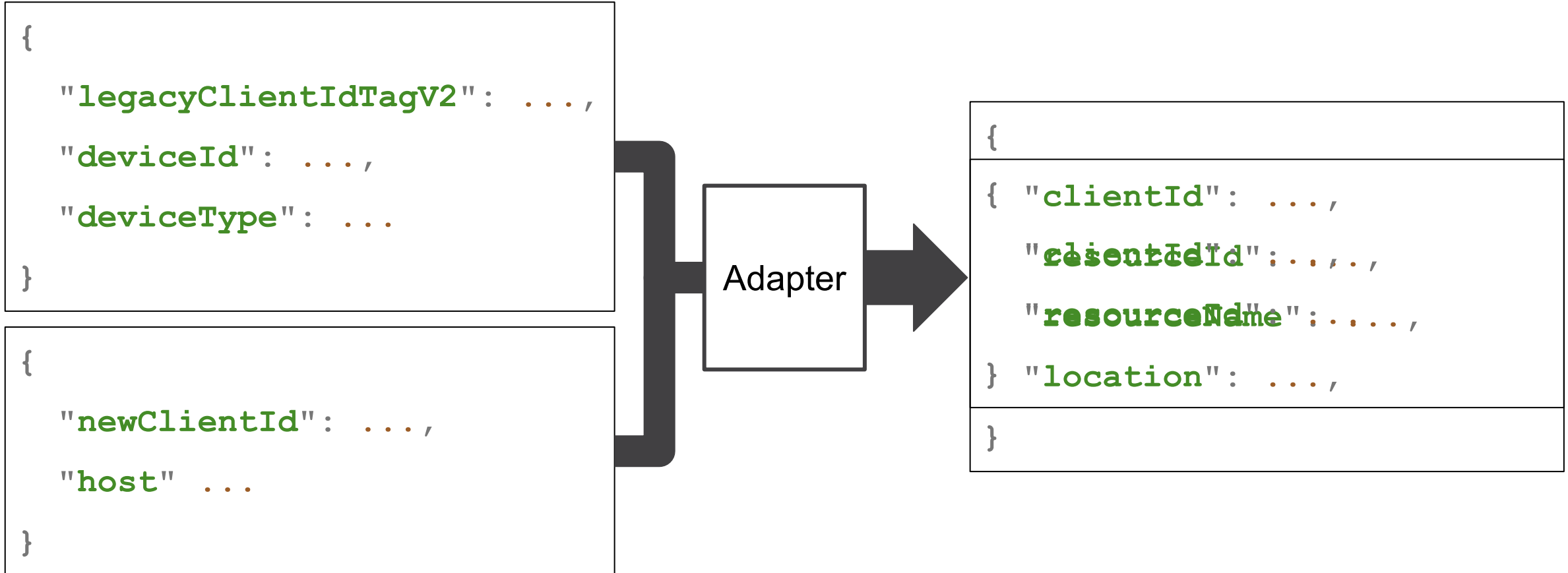
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Indirect Access



Indirect Access

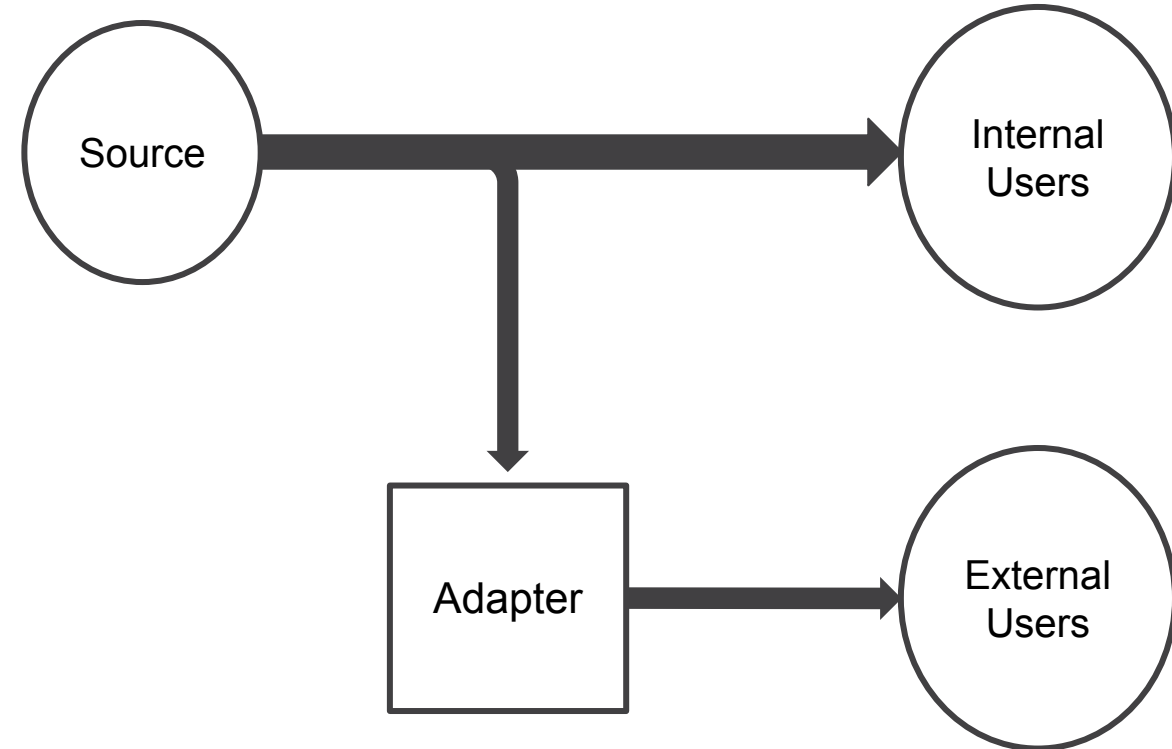


Indirect Access

Same source, slightly different outputs

Hides the skeletons

An effort level between direct and bespoke



How?

Dashboards

Direct Access

Bespoke Metrics

Indirect Access



Which data should we share?

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Everything?

No

*Or, at least 'probably not'

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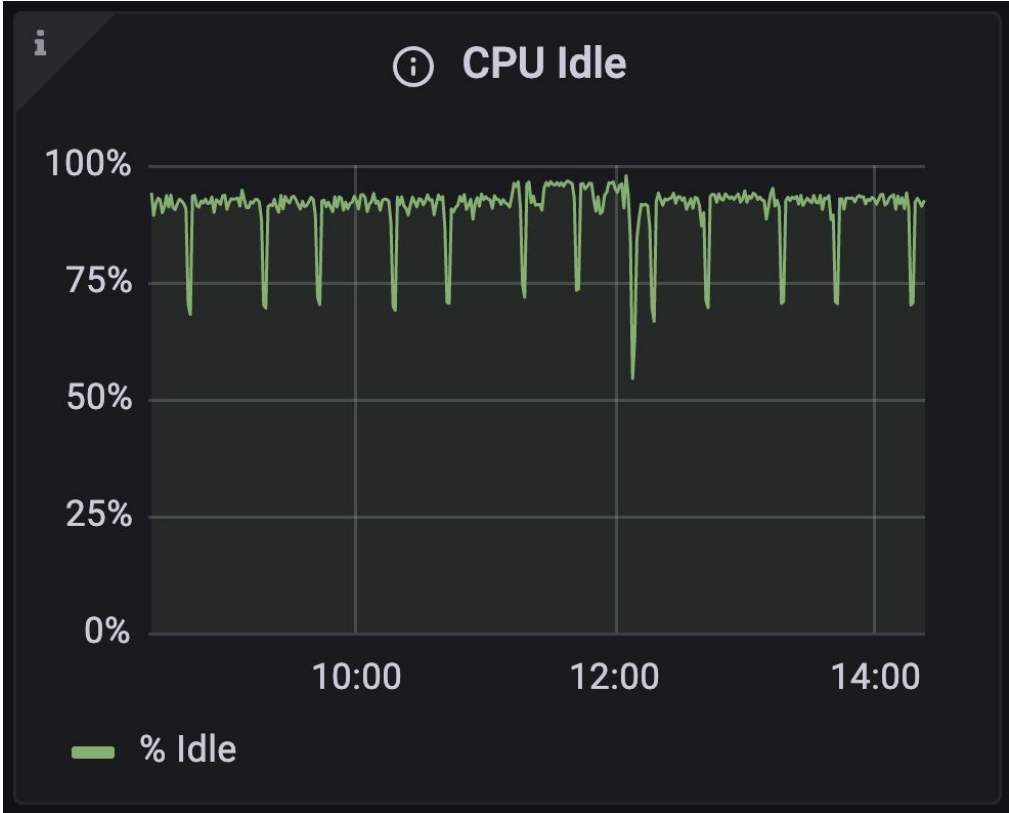
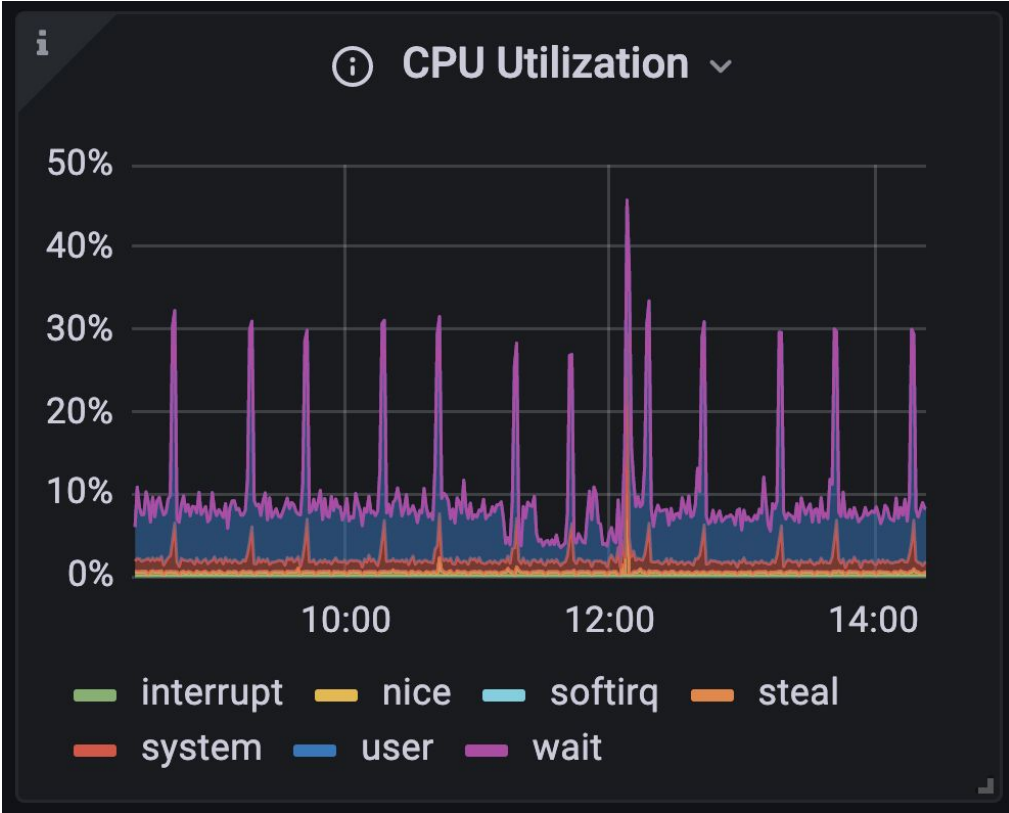
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Exclusion as default

- Don't provide more than is necessary
 - Every metric added is another that needs to be supported
 - Avoid “it might be useful”
- In the future, it is much easier to *add* than it is to *remove*
- 80/20 principle applies here

Which is more useful?



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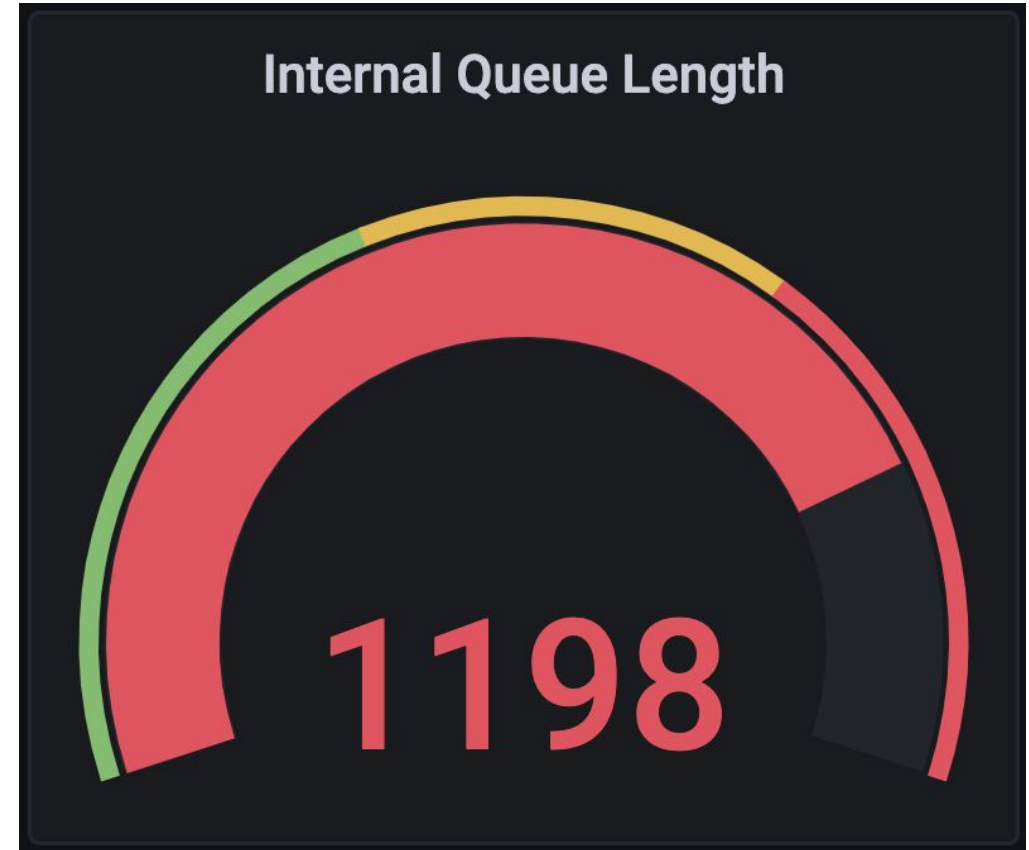
Focus on meaningful and actionable

Can the user **do something** with this information?

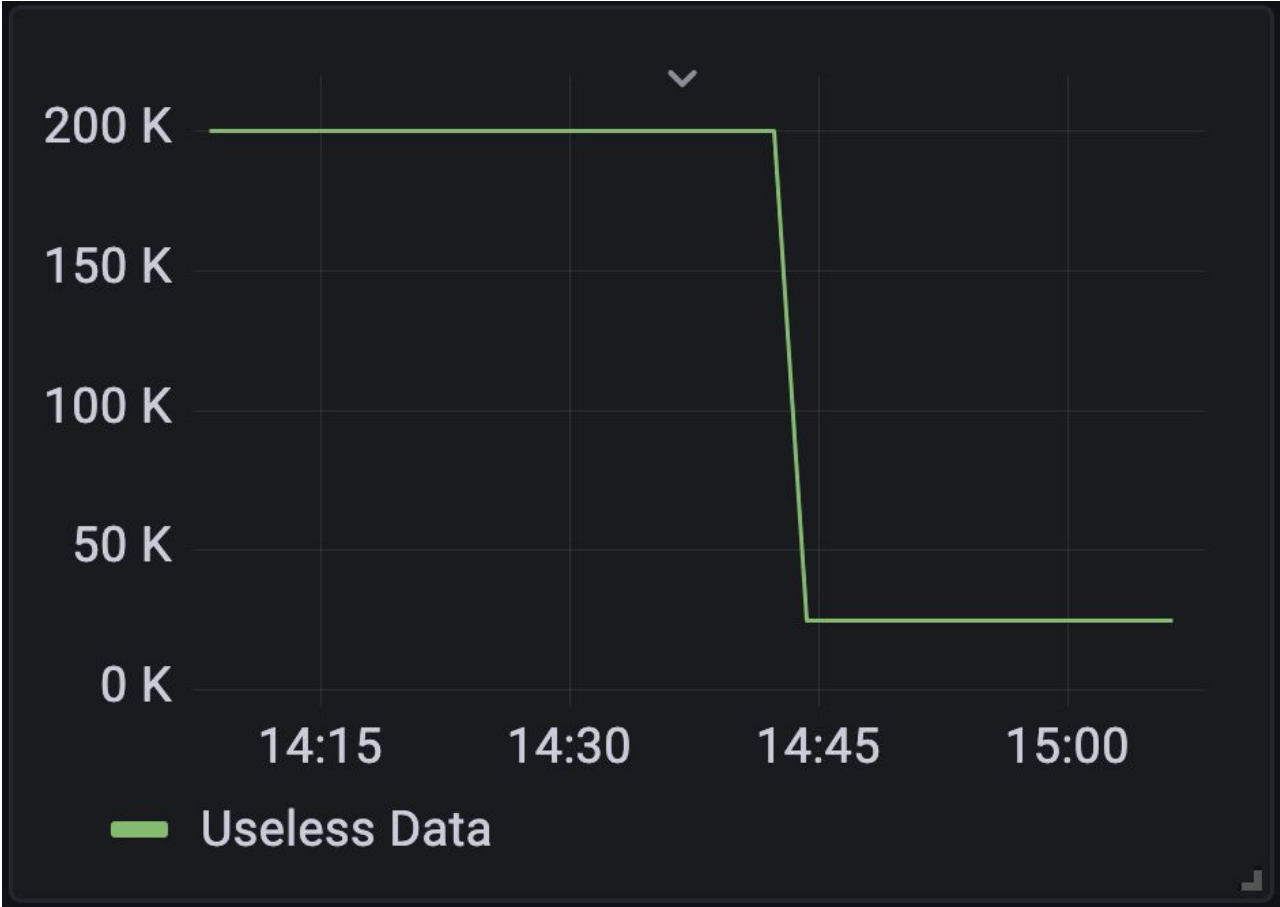
Can it indicate a **real** problem?



Is this actionable?



Does this matter?



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Sometimes this is hard...

Everyone will always want more
It is your job to convince them that they are wrong

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Ask

- What does this add to what is already available?
- What incidents would this have avoided?
- How often is it needed?



What does this look like at Bloomberg?

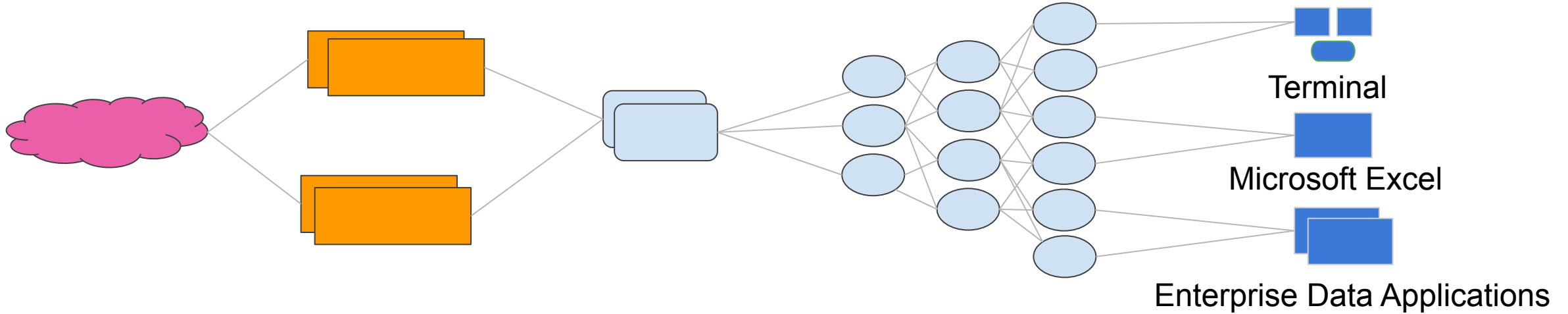
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Bloomberg Enterprise Data



Exchanges

Source of market data

Feed Handlers

Connectivity
Normalization

Storage

Consolidates and stores all data from all Exchanges

Data Distribution Infrastructure

Global distribution
Subscription management

The Terminal, Microsoft Excel, and Enterprise applications present data to clients using a unified interface

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Enterprise Client Metrics

- Provided to clients of enterprise products (B-PIPE and others)
- Support ~200 distinct metrics
- 800K datapoints/min (1.1 billion per day)

Enterprise Client Metrics - How?

Indirect Access
(mostly)

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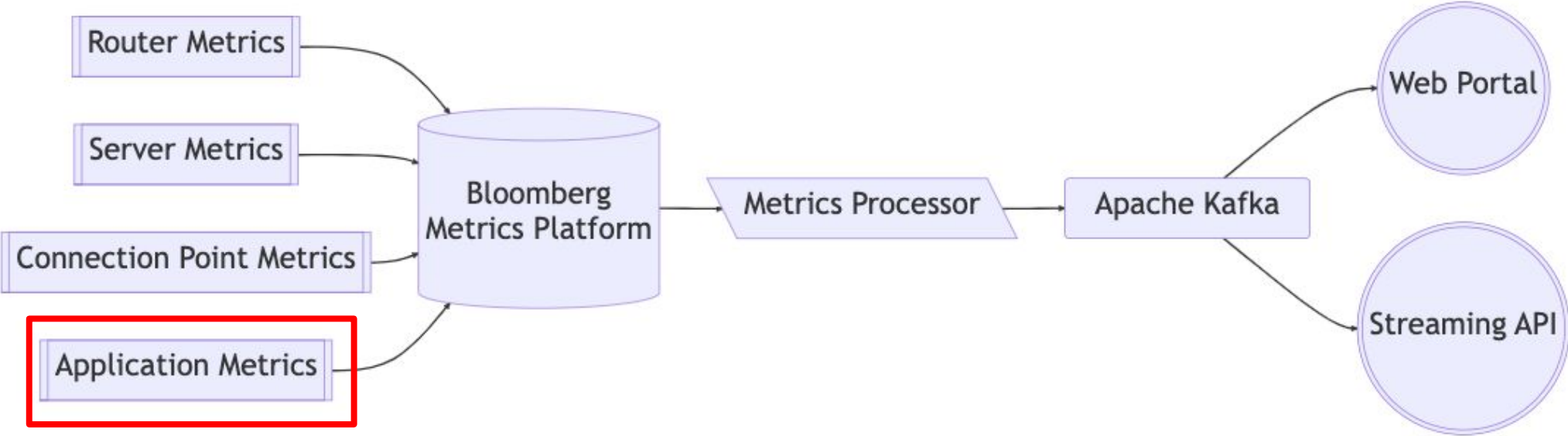
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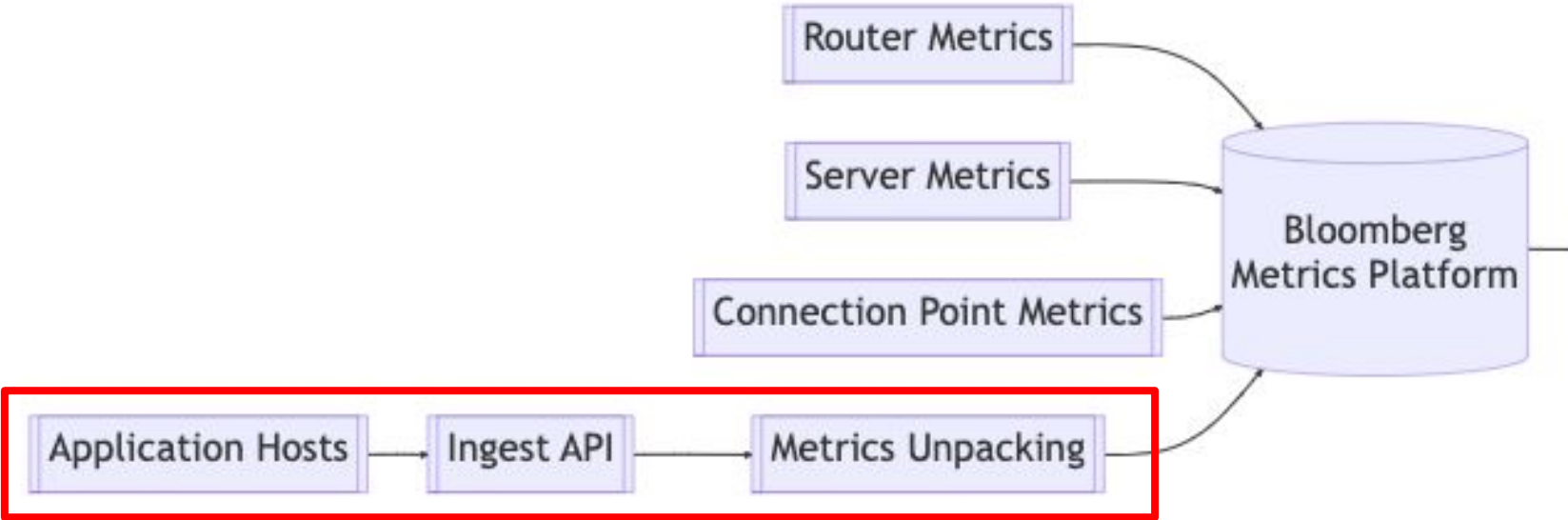
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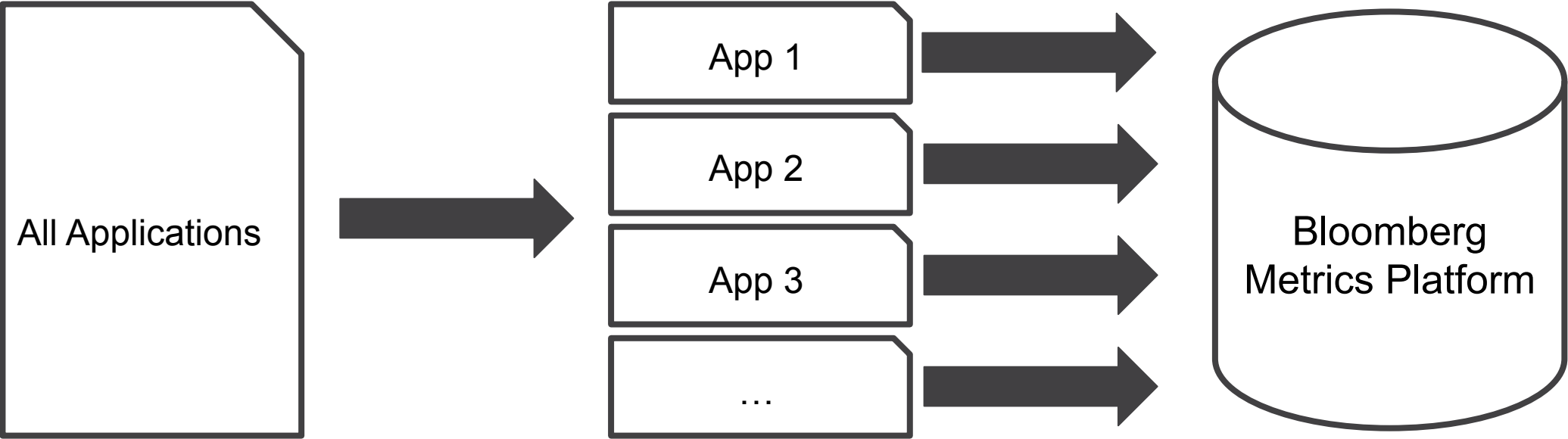
Ingest Metrics



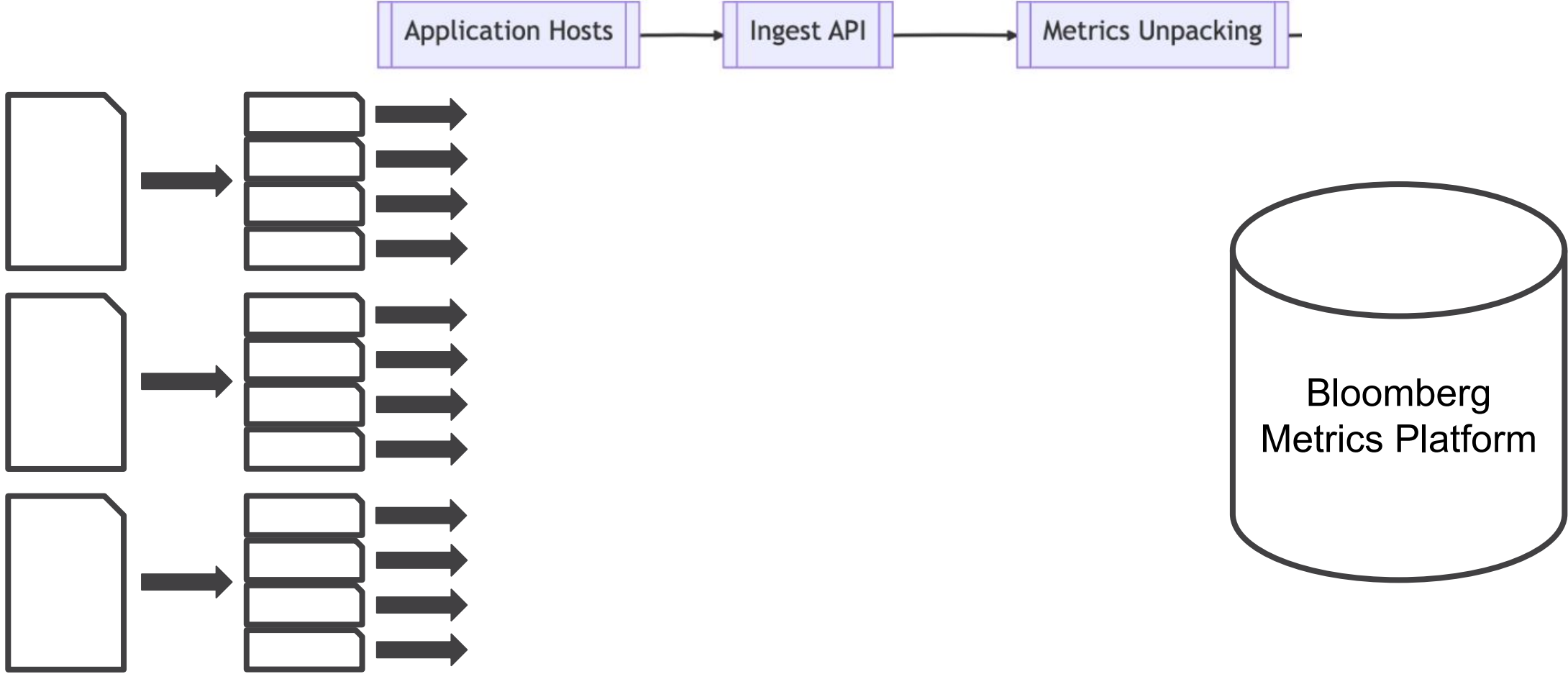
Ingest Metrics



Ingest Metrics



Ingest Metrics



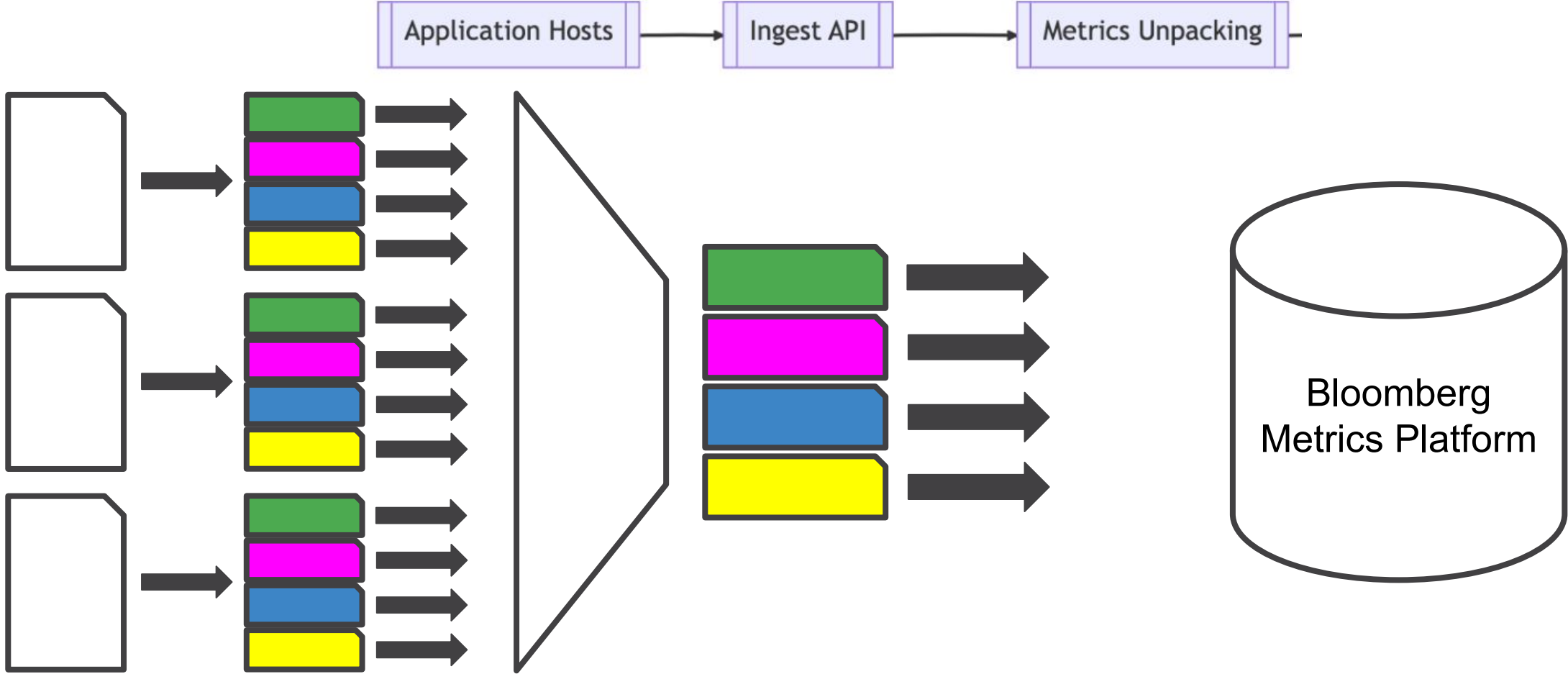
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Ingest Metrics



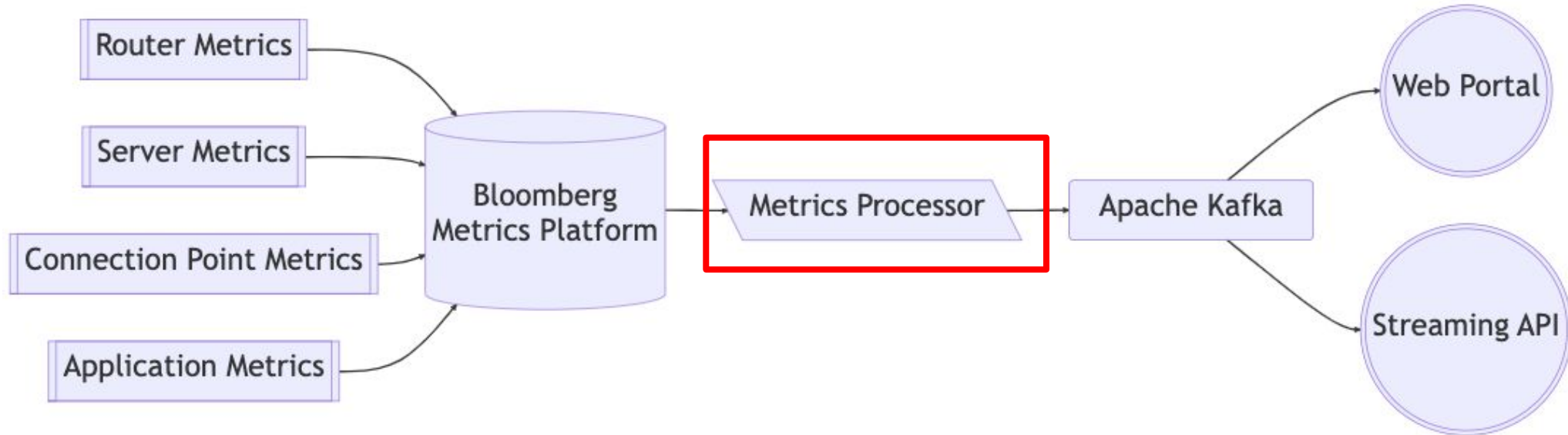
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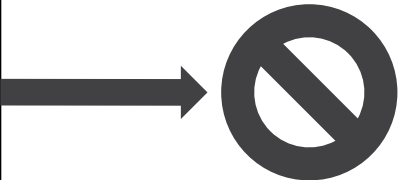
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Process and Augment



Process and Augment

```
{  
  "type": "internal", ...  
}
```

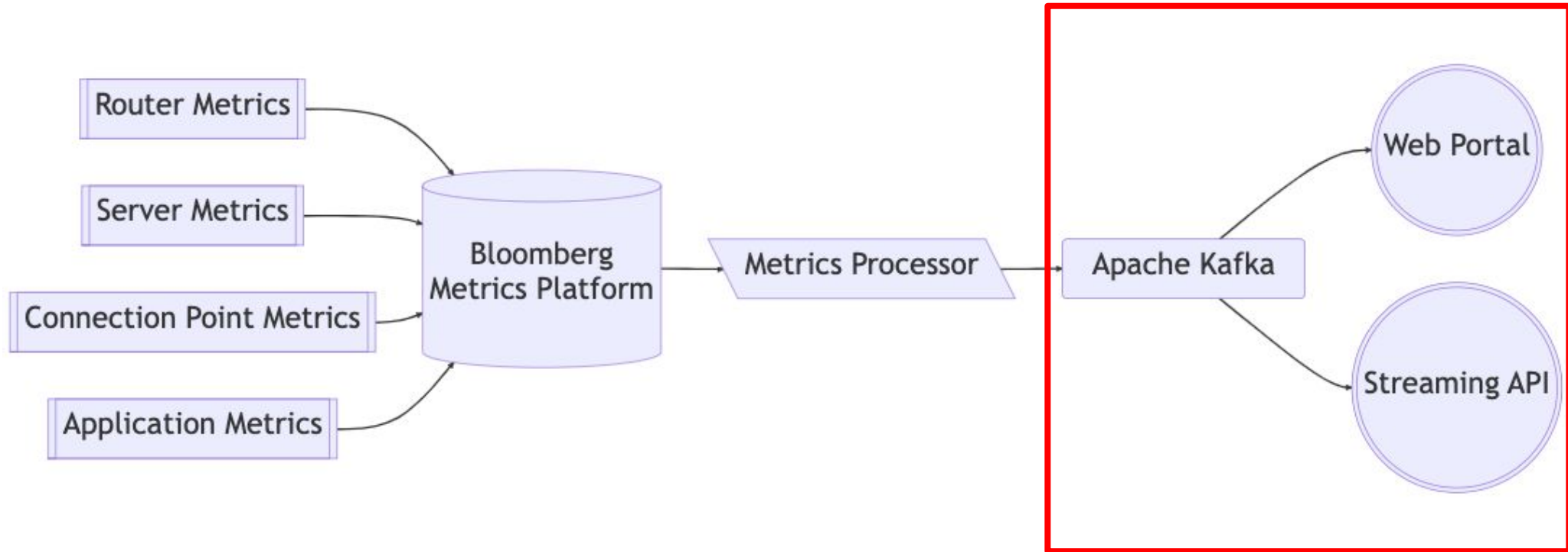


```
{  
  "name": "msgRcv",  
  "count": ...  
}
```

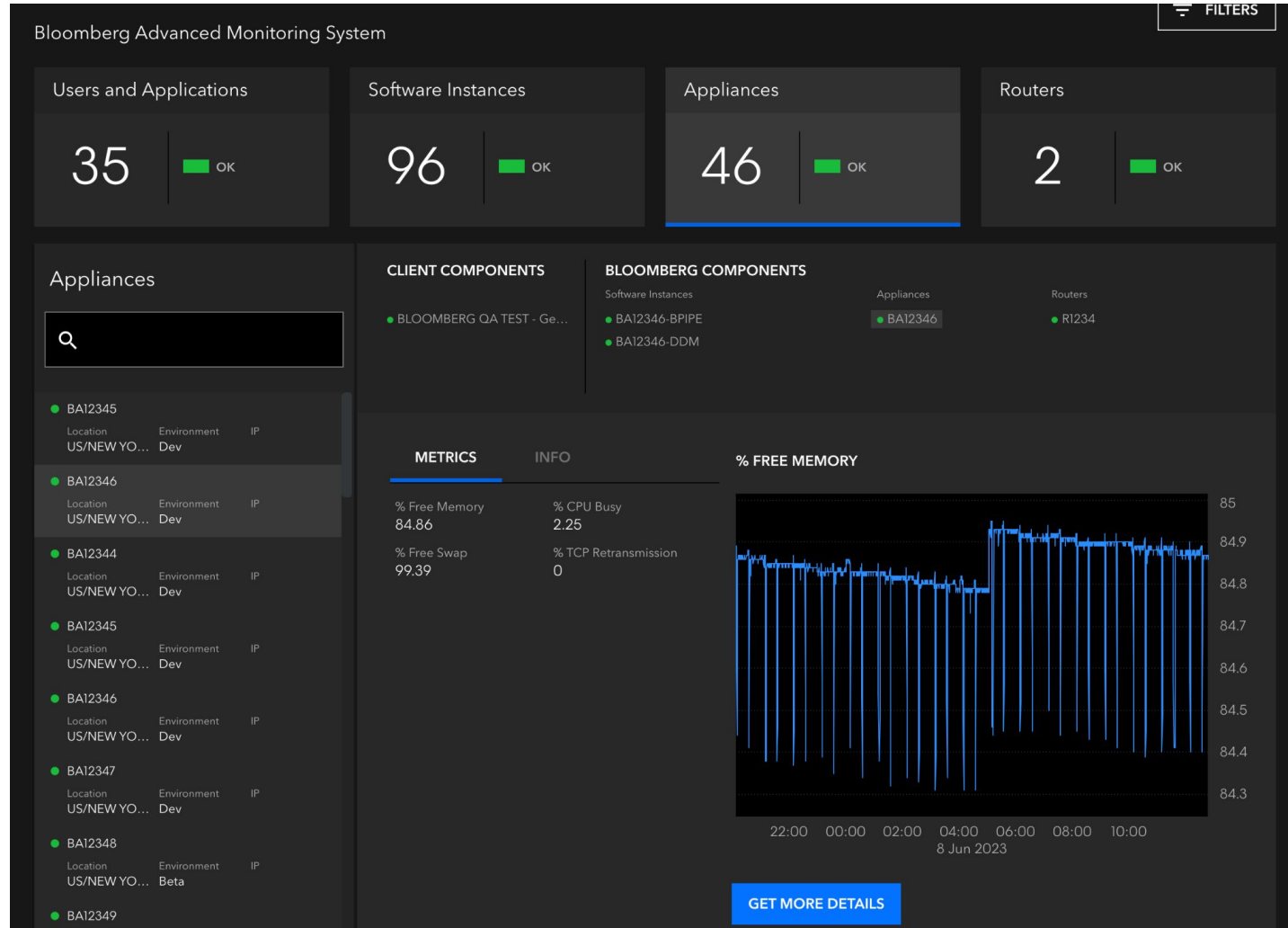


```
{  
  "name": "Message Count",  
  "count": ...  
}  
  
"clientCode": ABC,  
  
...,  
}
```

Publish and Distribute



Publish and Distribute



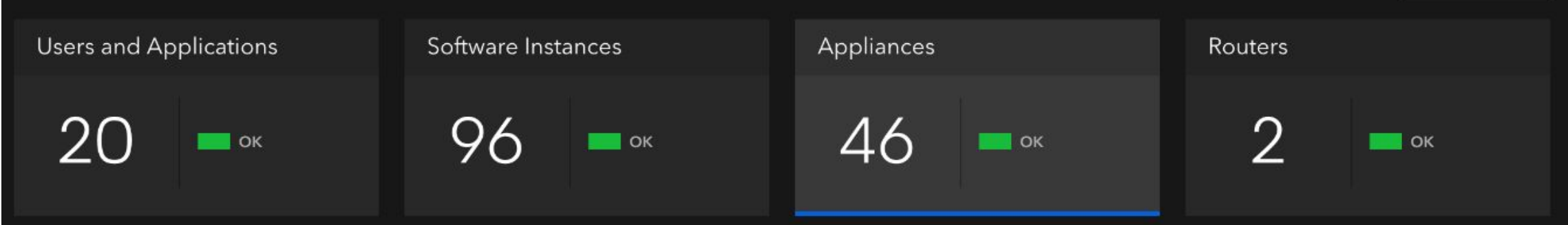
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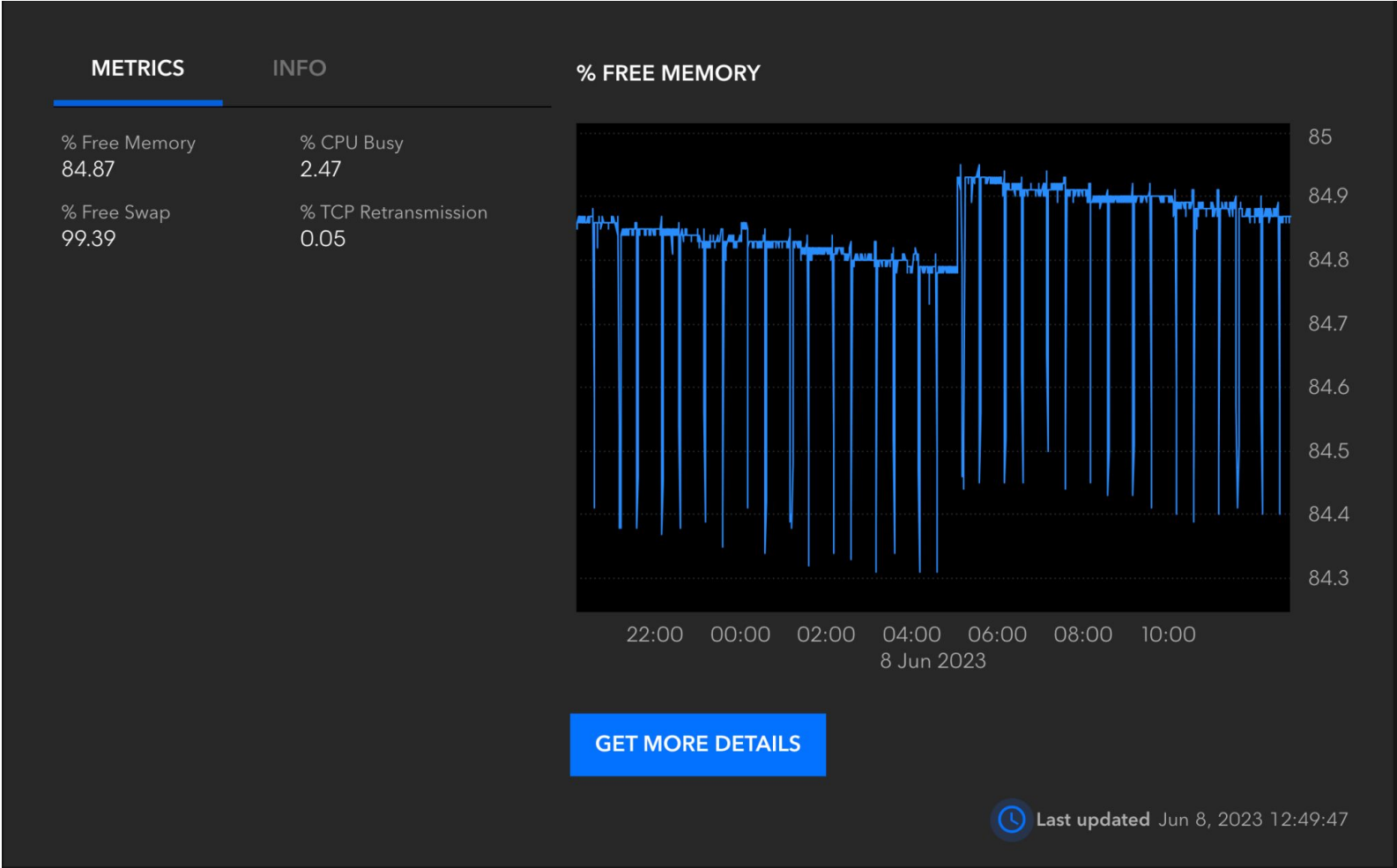
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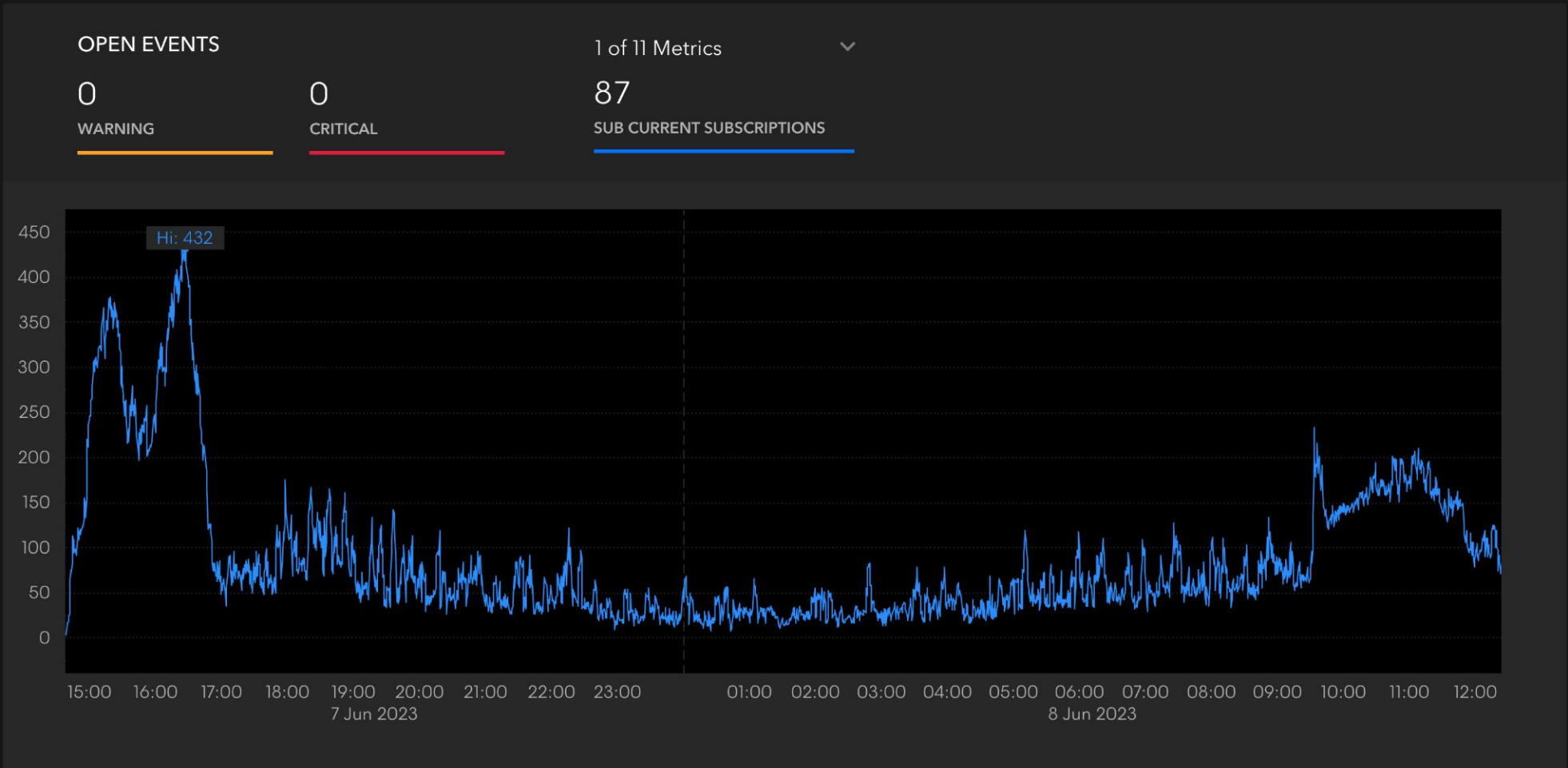
Publish and Distribute



Publish and Distribute



Publish and Distribute



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Takeaways

- Share your data
- Choose how you share carefully
- Be intentional about what you share
 - Exclusion as default
 - Meaningful and actionable

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