
ASP.Net Core

Прослеживаемость

CLTanuki • 08.06.2023

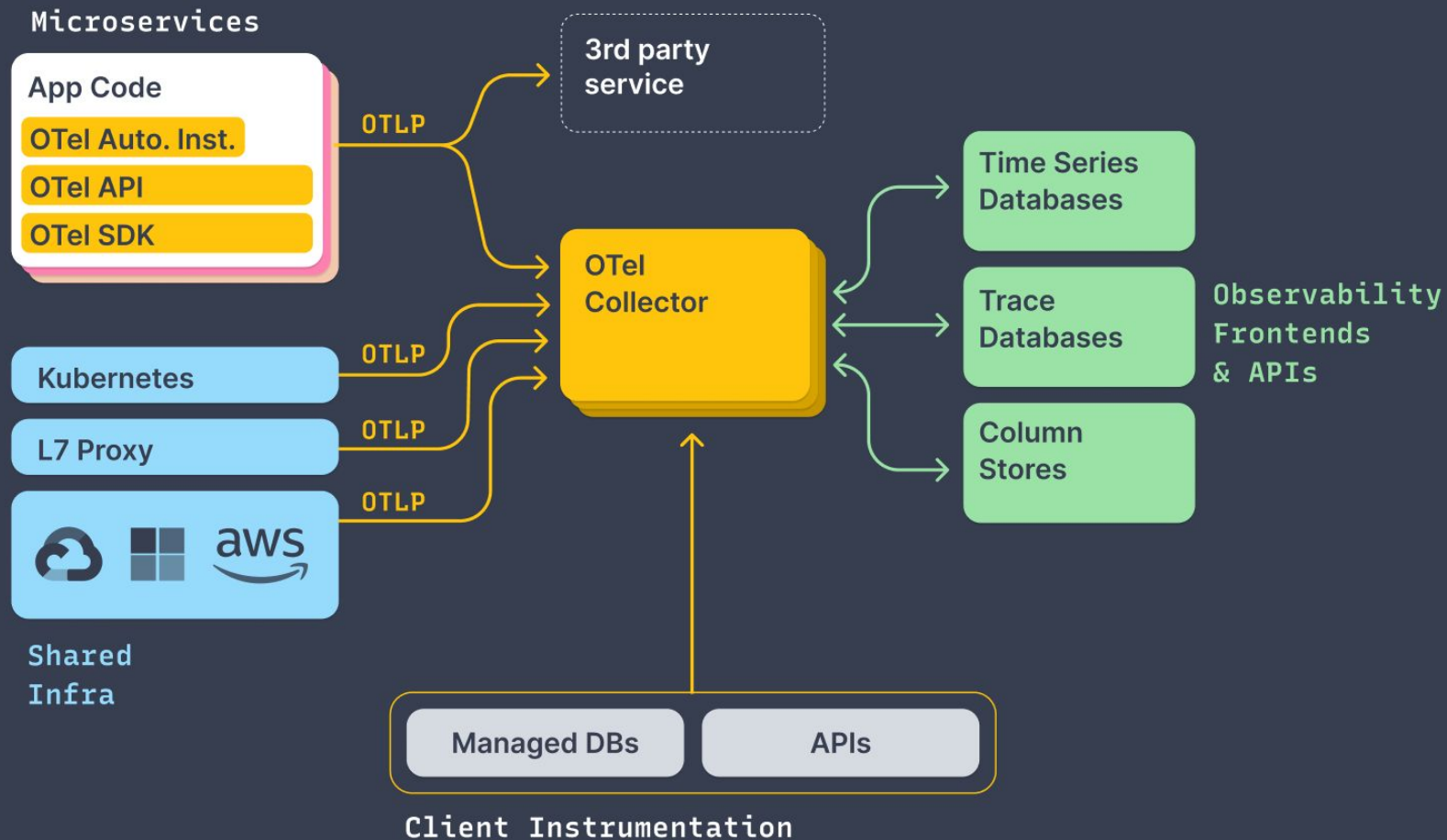


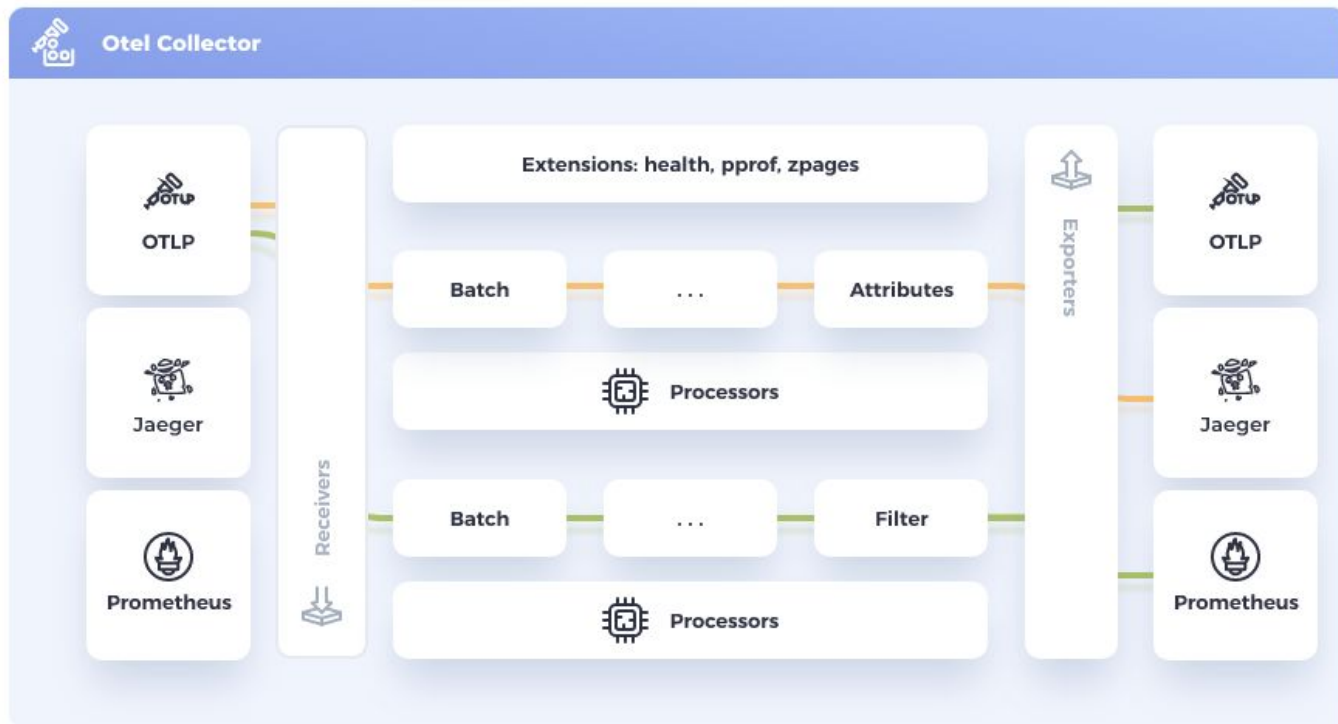
Open Telemetry

**Задача - обеспечение
прослеживаемости при
микросервисной разработке**

Инструменты

- SDK
- API
- Collector



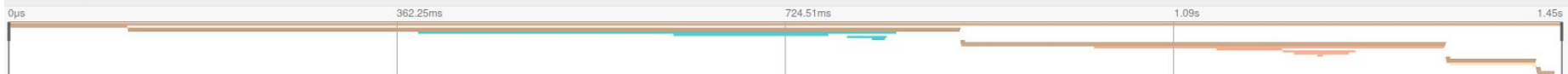


OTEL COLLECTOR

Реализации

- Apache Kafka
 - Apache SkyWalking
 - Elasticsearch
 - Fluent Bit
 - Graphite
 - Jaeger
 - OpenCensus
 - OpenTracing
 - OpenMetrics
 - Prometheus
 - Zipkin
-
- Sentry

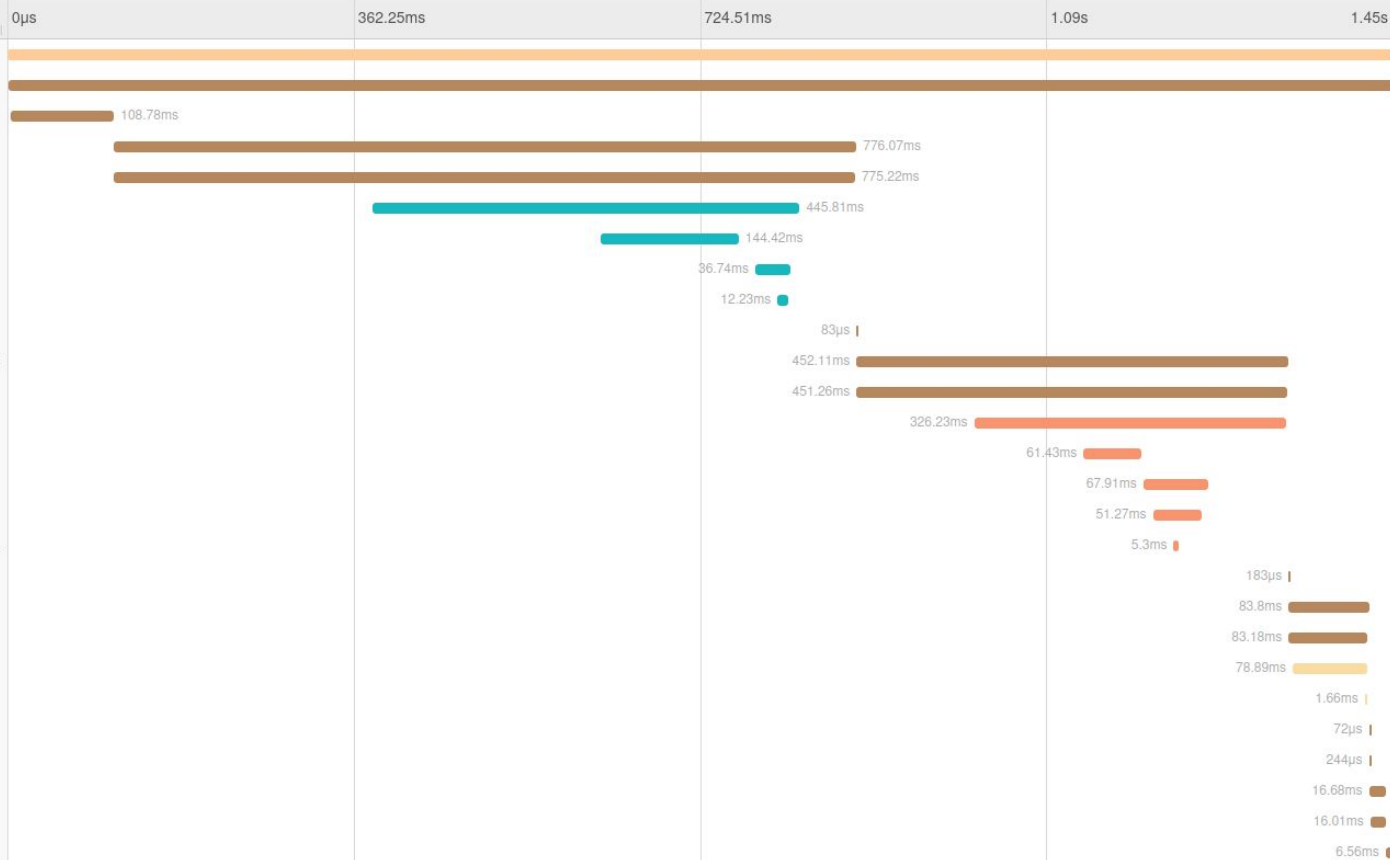
Trace Start **January 19, 2022, 14:31:10.959** Duration **1.45s** Services **5** Depth **6** Total Spans **27**



Service & Operation



- nginx proxy
 - frontend /home
 - frontend verify_token
 - frontend read_json_response_from_remote[balance-reader]
 - frontend HTTP GET
 - balance-reader get_balance
 - balance-reader jwt_verify
 - balance-reader load_cache
 - balance-reader → ledger ~find_balance
 - frontend json_deserialize
 - frontend read_json_response_from_remote[transaction-history]
 - frontend HTTP GET
 - transaction-history get_transactions
 - transaction-history jwt_verify
 - transaction-history cache_lookup
 - transaction-history load_cache
 - transaction-history → ledger ~find_to...
 - frontend json_deserialize
 - frontend read_json_response_from_remote[contacts]
 - frontend HTTP GET
 - contacts /contacts/<username>
 - contacts SELECT accounts
 - frontend json_deserialize
 - frontend populate_contact_labels
 - frontend jinja2.load
 - frontend jinja2.compile
 - frontend jinja2.render



Event ID

974a7057

Event Duration

5.56s

Browser

Chrome

develop

5 days ago

110.0.0

Filter

Search for spans

resource.link	3724.5ms	35%
resource.script	3002.9ms	28%
resource.css	2106.1ms	20%
Other	1859.7ms	17%

- pageload - 9949de5e050b1c5d
 - browser - cache
 - browser - DNS
 - browser - connect
 - browser - TLS/SSL
 - browser - request
 - browser - response
 - resource.link ~ /webpack-runtime-bf4c5d99c7d1634fd5db.js
 - resource.link ~ /framework-1c199377d542f8e7ab4.js
 - resource.link ~ /styles-d92458a40376ac1079c2.js
 - resource.link ~ /app-3ec41bfba8d1905427b6.js
 - resource.link ~ /page-data/index/page-data.json
 - resource.link ~ /page-data/sq/d/2158593473.json
 - resource.link ~ /page-data/sq/d/3338362288.json
 - resource.link ~ /page-data/sq/d/3818502851.json
 - resource.link ~ /page-data/sq/d/3853846993.json
 - resource.link ~ /page-data/sq/d/4015007367.json
 - resource.link ~ /page-data/app-data.json
 - paint - first-paint
 - resource.script ~ https://www.googletagmanager.com/gtag/js?id=UA-30327640-1
 - browser - domContentLoadedEvent
 - resource.css ~ /static/Rubik-Regular-d85c7abfb7b57d10ae8ff1c236cbcd810.ttf
 - resource.css ~ /static/Rubik-Medium-1c834b4058e2737b9f88a07ccdc8bc.ttf
 - paint - first-contentful-paint
 - resource.script ~ https://www.google-analytics.com/analytics.js
 - mark - sentry-tracing-init
 - http.client - GET /page-data/app-data.json
 - http.client - GET /page-data/index/page-data.json



Trace Navigator

This Event - 777

View Full Trace: bb56e1c3 (1 event)

Web Vitals

Cumulative Layout Shift
0.001First Contentful Paint
1.867 secondsFirst Paint
1.751 secondsLargest Contentful Paint
2.717 secondsTime to First Byte
1.415 secondsRequest Time
406.500 milliseconds

Custom Performance Metrics

connection.rtt
150.00ms

Tag Details

browser	Chrome 110.0.0
browser.name	Chrome
cls.source.1	div.col-sm-8.col-md-
cls.source.2	div.justify-content-e-
cls.source.3	div.row > div.col-sm-
cls.source.4	div.row > div.col-sm-
cls.source.5	div#main > p > a > sp-
deviceMemory	8 GB
effectiveConnection	4x

**Тем временем в стане
Microsoft...**

Diagnostics Eventflow

**Задача - создание инструмента
сбора и доставки событий в
систему отслеживания**

Состав:

- Входящий поток
- Исходящий поток
- Фильтры

Входящие потоки

```
"inputs": [
  {
    "type": "Trace",
    "traceLevel": "Warning"
  },
  {
    "type": "EventSource",
    "sources":
    [
      {
        "providerName": "Microsoft-ServiceFabric-Services"
      }
    ]
  }
]
```

Исходящие потоки

```
"outputs": [
  {
    "type": "ApplicationInsights",
    "instrumentationKey": "000000000-0000-0000-0000-000000000000",
    "filters": [
      {
        "type": "metadata",
        "metadata": "metric",
        // ...
      }
    ]
  }
]
```

Фильтры

```
"filters": [  
  {  
    "type": "drop",  
    "include": "..."  
  },  
  {  
    "type": "drop",  
    "include": "..."  
  }  
],
```

Расширение

```
class CustomOutput : IOutput
{
    public Task SendEventsAsync(ICollection<EventData> events, long transmissionSequenceNumber, CancellationToken cancellationToken)
    {
        foreach(var e in events)
        {
            Console.WriteLine($"CustomOutput: event says '{e.Payload["Message"]?.ToString() ?? "nothing"}");
        }
        return Task.CompletedTask;
    }
}
```

```
class CustomOutputFactory : IPipelineItemFactory<CustomOutput>
{
    public CustomOutput CreateItem(IConfiguration configuration, IHealthReporter healthReporter)
    {
        return new CustomOutput();
    }
}
```

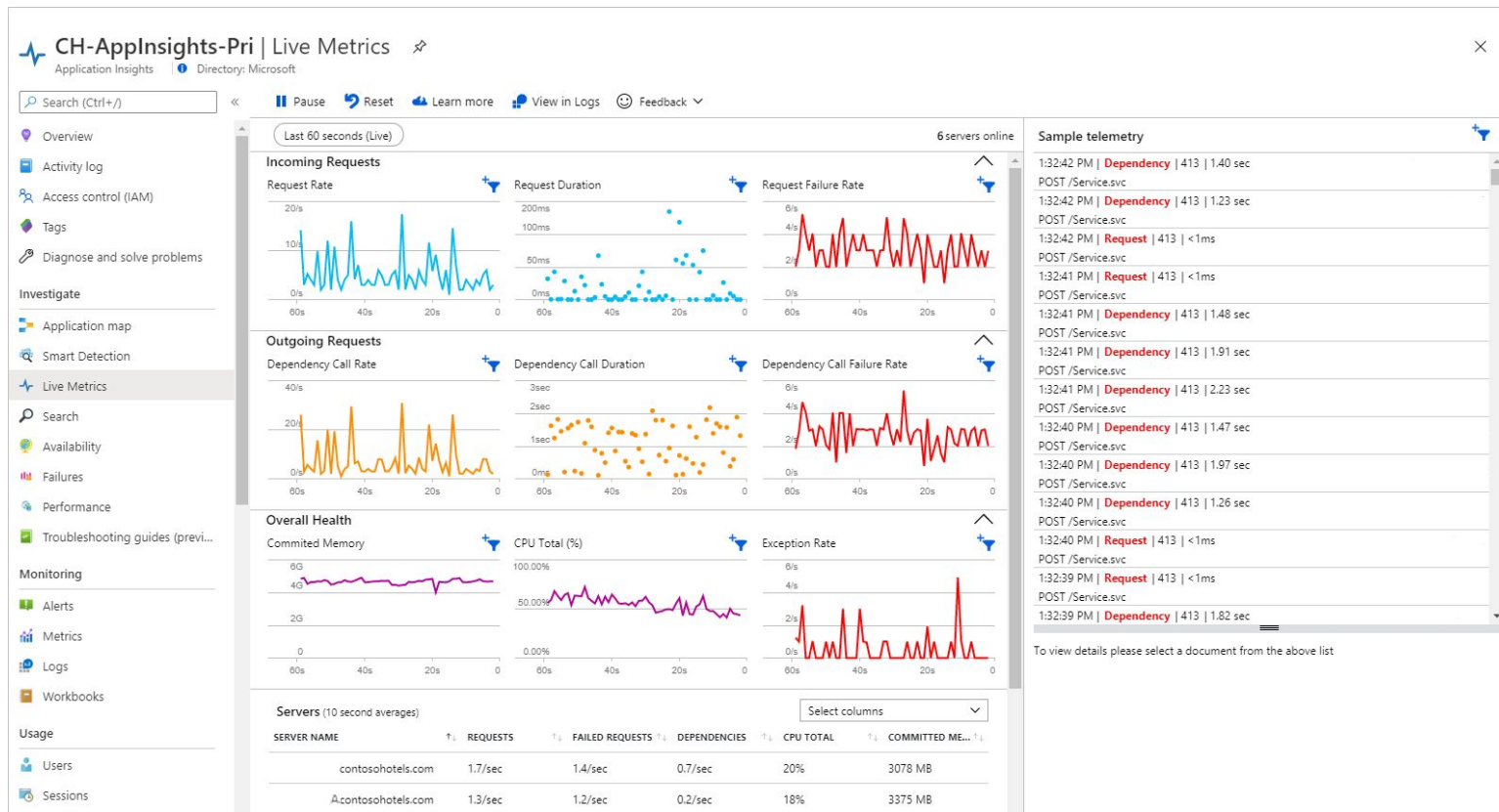
Application Insights

Инфраструктура сбора данных
приложений для Azure

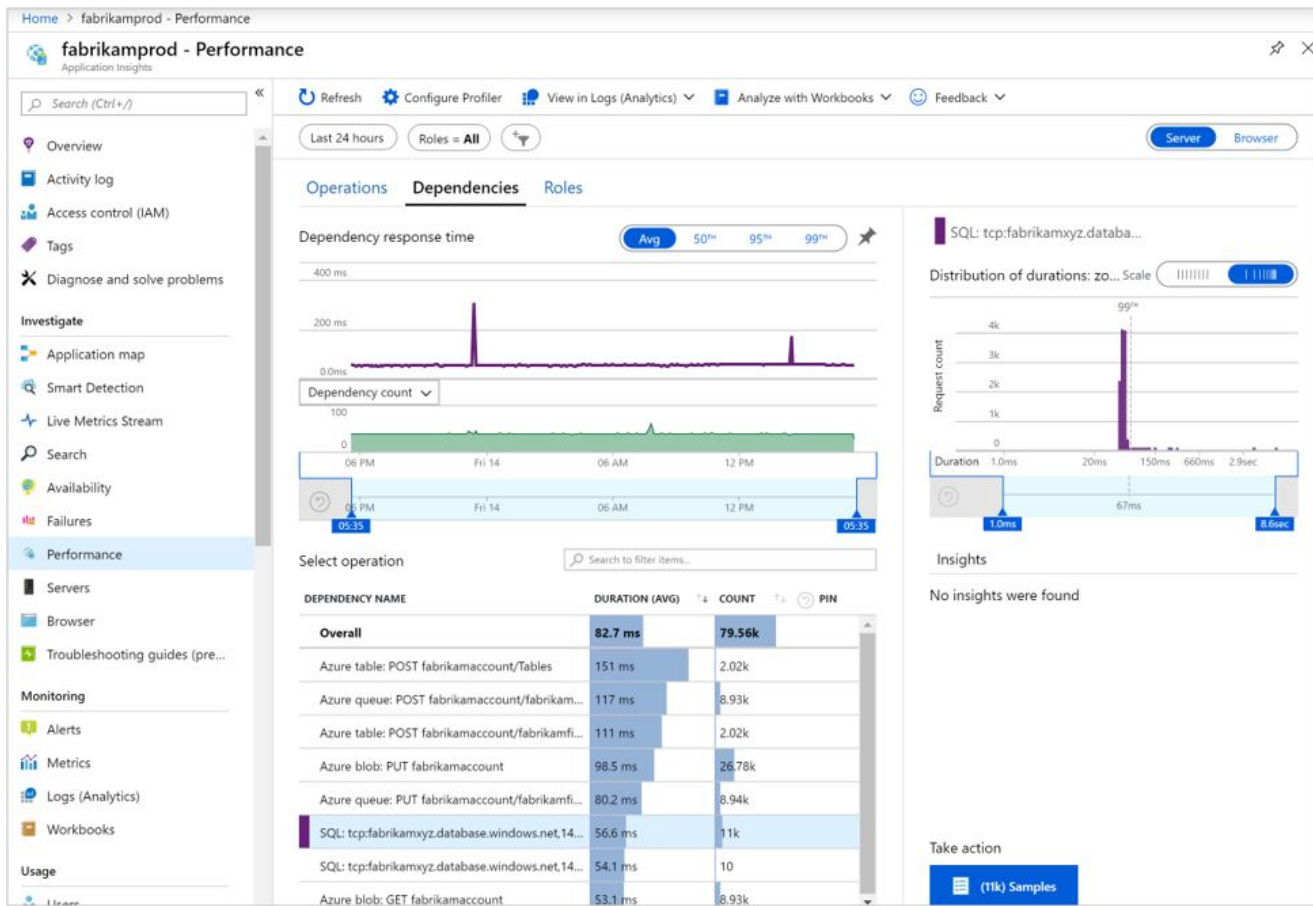
Состав:

- Показатели
жизнедеятельности
 - Отслеживание
зависимостей
 - Производительность
-

Live metrics



Зависимости

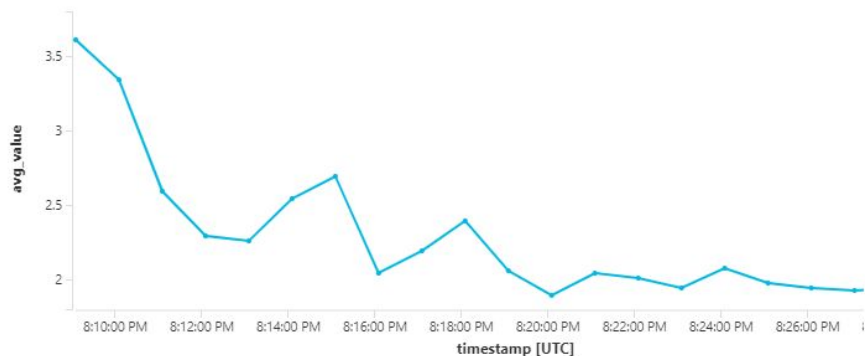


Производительность

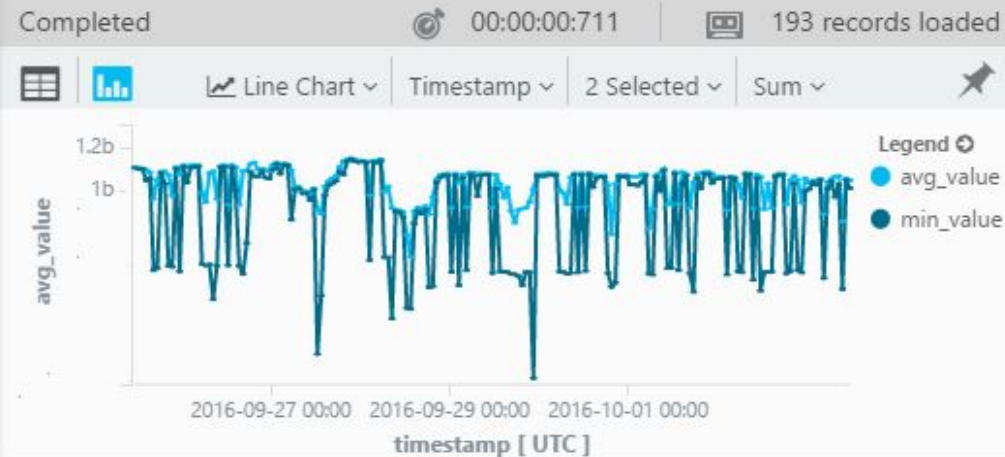
```
customMetrics  
| where name contains "System.Runtime.ThreadPool Completed Work Item Count"  
| where timestamp >= ago(1h)  
| summarize avg(value) by cloud_RoleInstance, bin(timestamp, 1m)  
| render timechart
```

Completed 00:00:

Table Chart Line Timestamp Avg_value Cloud_RoleInstance



```
performanceCounters | where counter == "Available Bytes"  
| summarize avg(value), min(value) by bin(timestamp, 1h)  
| render timechart
```





pixta.jp - 63789156

Grafana + Prometheus

Сравнение

- Бесплатно
 - Открытый код
 - Куча инструкций, примеров и дополнений
 - Необходимость содержания инфраструктуры
 - Необходимо настраивать
 - Нет гарантий
-



General / Sample dotnet-monitor dashboard ☆ 🔊



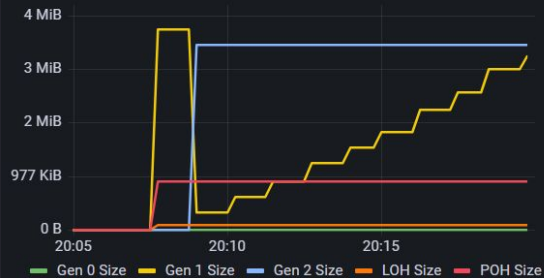
Last 15 minutes ▾



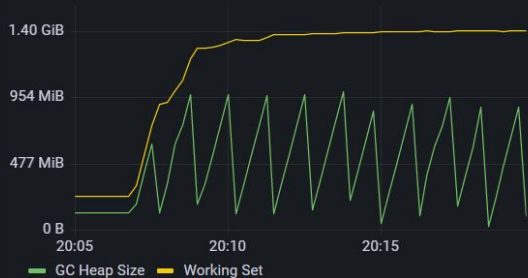
5s ▾



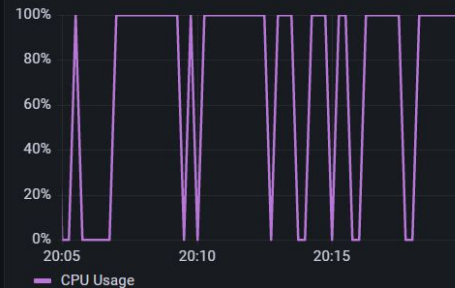
Generation Sizes



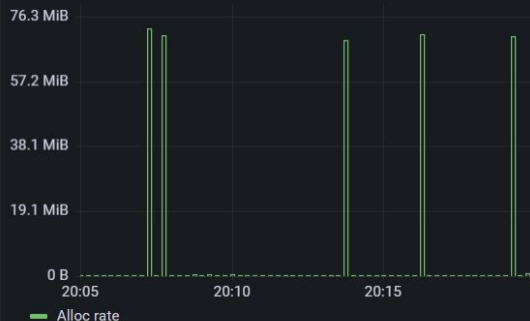
Overall Sizes



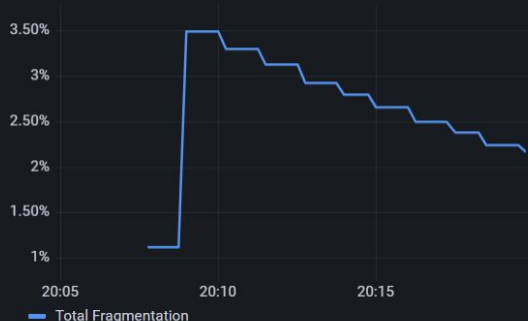
CPU



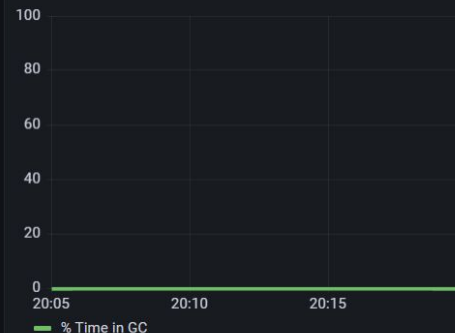
Allocations



GC Fragmentation



GC



▼ Row title



Упрощение

`_totalMemory.Set(GC.GetTotalMemory(false));`

```
if ((m_lastSegment == null) || !(m_lastSegment.Start <= obj && obj < m_lastSegment.End))
{
    if (Segments == null)
    {
        return -1;
    }

    for (int i = 0; ; i++)
    {
        if (i >= Segments.Count)
        {
            return -1;
        }

        GCHeapDumpSegment segment = Segments[i];
        if (segment.Start <= obj && obj < segment.End)
        {
            m_lastSegment = segment;
            break;
        }
    }
}
```

Порядок внедрения

1. Open telemetry
 2. Grafana + Prometheus
 3. Sentry
 4. Diagnostics evenflow
 5. Application insights
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