IBM Cognos Analytics
High Level Hardware Sizing

T-Shirt Sizes

for Cognos Analytics for Cloud Pak for Data 4.7

Cognos Analytics on Cloud Hosted Capacity

and Cognos Analytics on premise

Version 12.0b

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About T-Shirt Hardware Sizing for Cognos Analytics

- T-Shirt Sizing for Cognos Analytics is intended to be used for providing a first indication on required hardware and/or PVU/vCPUs for a projected Cognos Analytics application very early in the sales cycle when no workload information is available yet and hence the High Level sizing questionnaire cannot be completed
- T-Shirt Sizes need to be validated with a client-specific High Level sizing questionnaire once more details on the projected workload are known and/or with proper performance testing once at least a prototype of the application exists
- Sizing Estimates are no guarantee for Performance & Scalability and not intended to be used for troubleshooting Performance & Scalability for existing applications.
- Sizing Estimates are not intended to be used for solution upgrades.
- T-Shirt Sizes in this document cover Production workloads only.
- The end of this document contains a glossary of the terms being used.

Starting points Number of users vs. CPU capacity

In early discussions, clients will likely come up with one of the following two starting points:

1. The user base for our application will be around XXX users. What hardware do we need to support this, and what will be the license cost?
2. The standard server that is being deployed in our organization has XXX CPU cores/vCPUs with YYY GB of RAM. How many users can we support with this?

This deck contains estimates for both starting points.

For 1. the T-Shirt sizes provide a high level sizing estimate including CPU capacity, RAM, the suggested high level deployment architecture based on assumed application characteristics, and the PVU/vCPU value.

For 2. the T-Shirt sizes provide the application characteristics including number of users, concurrency, complexity and Batch figures, based on the assumed number of existing cores. Deployment architecture, CA on Cloud and CA on Cloud Pak for Data estimates are not in scope for these scenarios

Considerations

Cognos Analytics on Cloud Hosted Capacity Sizing Estimates

- All Cloud Hosted Capacity Sizing estimates in this document are based on a E5-2650v3 virtual CPU as a reference point. There is no guarantee that the provisioned cloud environment will use this CPU model.

Cognos Analytics on premise Sizing Estimates

- It is assumed that no Gateway is being used in the on premise deployments.
- All on premise sizing estimates in this document are based on a E5-2637v4 BareMetal CPU, which translates to 70 PVU per core. Content Manager installs that sit on a dedicated server are not considered for the PVU value.
- Estimates are based on the Cognos Analytics High Level Sizing Tool. In most cases, default assumptions were used. In some cases adjustments were made. These can be found in the characteristics for each T-Shirt size.
- CPU and RAM Estimates are intended to be minimum requirements in the context of the scenarios
- Regardless of any scenario or PVU/vCPU value for the chosen CPU model, the minimum number of CPU cores for a Cognos Analytics deployment should always be 4 cores
- “DB2 Content Store” translates to “DB2 Standard Edition” as outlined as a supporting program in the Cognos Analytics License Information

Considerations

Cognos Analytics for Cloud Pak for Data 4.7

- The T-Shirt Sizes only provide the vCPUs and RAM required for Cognos Analytics and the DB2 Content Store.

- The T-Shirt Sizes do **not** provide the minimum requirements for the overall Cloud Pak for Data platform. Please review the IBM Knowledge Center page about Cloud Pak for Data System requirements for a holistic view: https://www.ibm.com/docs/en/cloud-paks/cp-data/4.7.x?topic=requirements-hardware

T-Shirt Sizes based on number of users

Usage Characteristics

- **Up to 100 named users (represents 7 concurrent)**
  - Ratios
    4% Authors
    16% Dashboard/Exploration/Story users
    80% Report Live Execution users
- **Concurrency**
  - 4% for report execution and saved output access
  - 12% for Dashboards/Explorations/Stories/Studios
- **Dashboard & Complexity**
  - Default Output Complexity, 30% Master/Detail Queries
    Default Dashboard/Exploration percentages
- **8 hours dedicated Batch Window**
  - 40 reports to process
  - 4 Burst reports to 80 recipients with 2 avg. pages

Cloud Hosted Capacity Deployment

1 x IBM Cognos Analytics on Cloud Hosted Capacity Instance

Cloud Pak for Data (as per version 4.7) Please refer to slide 5

S (Small) Cognos Analytics Deployment (16 vCPUs and 57 GB of RAM)

DB2 Content Store Custom Deployment (4 vCPUs and 48 GB of RAM)

Sizing Estimate for on premise deployment – XS (Extra Small)

4 CPU cores
32 GB of RAM

DB2 Content Store DB
2 CPU Cores, 32 GB of RAM, 5 – 25 GB disk

PVU-Estimate

280 PVU

Deployment Architecture

Single Server deployment

Usage Characteristics

- **100 - 250 named users (represents 14 concurrent)**
  - Ratios
    4% Authors
    16% Dashboard/Exploration/Story users
    80% Report Live Execution users
- **Concurrency**
  - 4% for report execution and saved output access
  - 12% for Dashboards/Explorations/Stories/Studios
- **Dashboard & Complexity**
  - Default Output Complexity, 30% Master/Detail Queries
    Default Dashboard/Exploration percentages
- **8 hours dedicated Batch Window**
  - 100 reports to process
  - 10 Burst reports to 200 recipients with 2 avg. pages

Cloud Hosted Capacity Deployment

1 x IBM Cognos Analytics on Cloud Hosted Capacity Instance

Cloud Pak for Data (as per version 4.7 Please refer to slide 5

S (Small) Cognos Analytics Deployment (16 vCPUs and 57 GB of RAM)
DB2 Content Store Custom Deployment (4 vCPUs and 48 GB of RAM)

Sizing Estimate for on premise deployment – S (Small)

Report Server
4 CPU cores
32 GB of RAM

Content Manager
1 CPU core
16 GB of RAM

DB2 Content Store DB
2 CPU cores
32 GB of RAM, 5 – 25 GB disk

PVU-Estimate
280 PVU

Deployment Architecture
Content Manager on a dedicated server
(not considered for PVU)

Usage Characteristics

- **250 – 500 named users (represents 21 concurrent)**
  - Ratios
    4% Authors
    16% Dashboard/Exploration/Story users
    80% Report Live Execution users
- **Concurrency**
  - 3% for report execution and saved output access
  - 9% for Dashboards/Explorations/Stories/Studios
- **Dashboard & Complexity**
  - Default Output complexity, Default Dashboard/Exploration percentages, 4 Dashboard widgets, 30% Master/Detail Queries, 10% uploaded files up to 2M rows
- **8 hours dedicated Batch Window**
  - 200 reports to process
  - 20 Burst reports to 400 recipients with 2 avg. pages

Cloud Hosted Capacity Deployment

1 x IBM Cognos Analytics on Cloud Hosted Capacity Instance

Cloud Pak for Data (as per version 4.7) Please refer to slide 5

S (Small) Cognos Analytics Deployment (16 vCPUs and 57 GB of RAM)
DB2 Content Store Custom Deployment (8 vCPUs and 64 GB of RAM)

Sizing Estimate for on premise deployment - M (Medium)

Report Server
6 CPU cores
48 GB of RAM

Content Manager
1 CPU core
16 GB of RAM

DB2 Content Store DB
4 CPU Cores
64 GB of RAM, 5 – 35 GB disk

PVU-Estimate
420 PVU

Deployment Architecture
Content Manager on a dedicated server
(not considered for PVU)

Usage Characteristics

- **500 - 1000 named users (represents 28 concurrent)**
  - Ratios
    4% Authors
    16% Dashboard/Exploration/Story users
    80% Report Live Execution users
- **Concurrency**
  - 2% for report execution and saved output access
  - 6% for Dashboards/Explorations/Stories/Studios
- **Dashboard & Complexity**
  - Default Output complexity, Default Dashboard/Exploration percentages, 6 Dashboard widgets, 30% Master/Detail Queries, 10% uploaded files up to 2M rows
- **8 hours dedicated Batch Window**
  - 400 reports to process
  - 40 Burst reports to 800 recipients with 2 avg. pages

Cloud Hosted Capacity Deployment

1 x IBM Cognos Analytics on Cloud Hosted Capacity Instance

Cloud Pak for Data (as per version 4.7) Please refer to slide 5

S (Small) Cognos Analytics Deployment (16 vCPUs and 57 GB of RAM)
DB2 Content Store Custom Deployment (8 vCPUs and 64 GB of RAM)

Sizing Estimate for on premise deployment – L (Large)

Report Server
2 * 6 CPU cores
2 * 48 GB of RAM

Content Manager
2 CPU cores
16 GB of RAM

DB2 Content Store DB
4 CPU Cores
64 GB of RAM, 10 – 50 GB disk

PVU-Estimate
840 PVU

Deployment Architecture
2 Report Servers (Load Balancer required)
Content Manager on a dedicated server
(not considered for PVU)

Usage Characteristics

- **1000 - 2000 named users (represents 37 concurrent)**
  - Ratios
    2% Authors
    25% Dashboard/Exploration/Story users
    73% Report Live Execution users
- **Concurrency**
  - 1% for report execution and saved output access
  - 4% for Dashboards/Explorations/Stories/Studios
- **Dashboard & Complexity**
  - Default Output complexity, Default Dashboard/Exploration percentages, 7 Dashboard widgets, 30% Master/Detail Queries, 10% uploaded files up to 2M rows
- **8 hours dedicated Batch Window**
  - 800 reports to process
  - 80 Burst reports to 1500 recipients with 2 avg. pages

Cloud Hosted Capacity Deployment

1 x IBM Cognos Analytics on Cloud Hosted Capacity Instance

Cloud Pak for Data (as per version 4.7) Please refer to slide 5

S (Small) Cognos Analytics Deployment (16 vCPUs and 57 GB of RAM)
DB2 Content Store Custom Deployment (10 vCPUs and 64 GB of RAM)

Sizing Estimate for on premise deployment – XL (Extra Large)

Report Server
2 * 8 CPU cores
2 * 56 GB of RAM

Content Manager
4 CPU cores
16 GB of RAM

DB2 Content Store DB
8 CPU Cores
64 GB of RAM, 10 – 60 GB disk

PVU-Estimate
1120 PVU

Deployment Architecture
2 Report Servers (Load Balancer required)
Content Manager on a dedicated server
(not considered for PVU)

Usage Characteristics

- **2000 - 4000 named users (represents 62 concurrent)**
  - Ratios
    1% Authors
    25% Dashboard/Exploration/Story users
    74% Report Live Execution users
- **Concurrency**
  - 1% for report execution and saved output access
  - 3% for Dashboards/Explorations/Stories/Studios
- **Dashboard & Complexity**
  - Default Output complexity, Default Dashboard/Exploration percentages, 7 Dashboard widgets, 30% Master/Detail Queries, 10% uploaded files up to 2M rows
- **8 hours dedicated Batch Window**
  - 1400 reports to process
  - 140 Burst reports to 3000 recipients with 2 avg. pages

Cloud Hosted Capacity Deployment

1 x IBM Cognos Analytics on Cloud Hosted Capacity Instance
1 x IBM Cognos Analytics on Cloud Hosted Application Instance
Add-on Application instance

Cloud Pak for Data (as per version 4.7) Please refer to slide 5

M (Medium) Cognos Analytics Deployment (18 vCPUs and 75 GB of RAM)
DB2 Content Store Custom Deployment (12 vCPUs and 96 GB of RAM)

Sizing Estimate for on premise deployment – XXL (Extra Extra Large)

Report Server
2 * 8 CPU cores
2 * 56 GB of RAM

Content Manager
4 CPU cores
16 GB of RAM

DB2 Content Store DB
10 CPU Cores
96 GB of RAM, 10 – 75 GB disk

PVU-Estimate
1120 PVU

Deployment Architecture
2 Report Servers (Load Balancer required)
Content Manager on a dedicated server
(not considered for PVU)

Usage Characteristics

- **4000 - 5000 named users (represents 76 concurrent)**
  - Ratios
    1% Authors
    25% Dashboard/Exploration/Story users
    74% Report Live Execution users
- **Concurrency**
  - 1% for report execution and saved output access
  - 3% for Dashboards/Explorations/Stories/Studios
- **Dashboard & Complexity**
  - Default Output complexity, Default Dashboard/Exploration percentages, 7 Dashboard widgets, 30% Master/Detail Queries, 10% uploaded files up to 2M rows
- **8 hours dedicated Batch Window**
  - 1600 reports to process
  - 160 Burst reports to 4000 recipients with 2 avg. pages

Cloud Hosted Capacity Deployment

1 x IBM Cognos Analytics on Cloud Hosted Capacity Instance
1 x IBM Cognos Analytics on Cloud Hosted Application Instance
Add-on Application instance

Cloud Pak for Data (as per version 4.7) Please refer to slide 5

L (Large) Cognos Analytics Deployment (25 vCPUs and 103 GB of RAM)
DB2 Content Store Custom Deployment (16 vCPUs and 128 GB of RAM)

Sizing Estimate for on premise deployment – XXXL (3 x Extra Large)

Report Server
2 * 10 CPU cores
2 * 64 GB of RAM

Content Manager
6 CPU cores
16 GB of RAM
disk

DB2 Content Store DB
12 CPU Cores
128 GB of RAM, 10 – 75 GB

PVU-Estimate
1400 PVU

Deployment Architecture
2 Report Servers (Load Balancer required)
Content Manager on a dedicated server
(not considered for PVU)

Usage Characteristics

- **5000 - 8500 named users (represents 93 concurrent)**
  - Ratios
    1% Authors
    25% Dashboard/Exploration/Story users
    74% Report Live Execution users
- **Concurrency**
  - 0,75% for report execution and saved output access
  - 2% for Dashboards/Explorations/Stories/Studios
- **Dashboard & Complexity**
  - Default Output complexity, Default Dashboard/Exploration percentages, 7 Dashboard widgets, 30% Master/Detail Queries, 10% uploaded files up to 2M rows
- **8 hours dedicated Batch Window**
  - 1600 reports to process
  - 160 Burst reports to 4000 recipients with 2 avg. pages

Cloud Hosted Capacity Deployment

1 x IBM Cognos Analytics on Cloud Hosted Capacity Instance
1 x IBM Cognos Analytics on Cloud Hosted Application Instance
Add-on Application instance

Cloud Pak for Data (as per version 4.7) Please refer to slide 5

L (Large) Cognos Analytics Deployment (25 vCPUs and 103 GB of RAM)
DB2 Content Store Custom Deployment (16 vCPUs and 128 GB of RAM)

Sizing Estimate for on premise deployment – XXXL (3 x Extra Large)

Report Server
2 * 12 CPU cores
2 * 74 GB of RAM

Content Manager
6 CPU cores
16 GB of RAM
disk

DB2 Content Store DB
12 CPU Cores
128 GB of RAM, 10 – 75 GB

PVU-Estimate
1680 PVU

Deployment Architecture
2 Report Servers (Load Balancer required)
Content Manager on a dedicated server
(not considered for PVU)

Usage Characteristics

- More than 8500 named users

Sizing Estimate

On premise and Cloud Hosted

If the number of users and Batch/Burst-Reports are the only changing variables while concurrency ratio and complexity remain the same, then Report Server is expected to scale proportionally to the increase of the number of users / number of Batch/Burst-Reports from T-Shirt Size XXXL upwards.
Content Manager is expected to scale proportionally to the increase of concurrency and Reporting CPU cores.

It is however strongly suggested to run a full High Level Sizing Exercise for the specific scenario to ensure accurate estimates.

Cloud Pak for Data 4.7

Contact Product Management,
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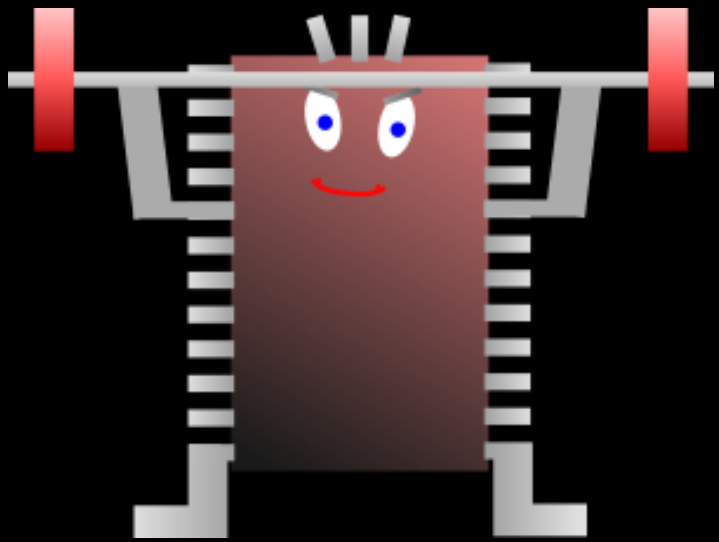
T-Shirt Sizes based on number of existing CPU cores

(Deployment architecture, CA on Cloud and CA on Cloud Pak for Data estimates are not in scope for these scenarios)



XS

Existing server hardware

- 4 existing CPU cores
  (assuming a minimum of 32 GB RAM)

Application Characteristics Estimate

- **Up to 100 named users**
  - Ratios
    4% Authors
    16% Dashboard/Exploration/Story users
    80% Report Live Execution users
- **Concurrency**
  - 4% for report execution and saved output access
  - 12% for Dashboards/Explorations/Stories/Studios
- **Dashboard & Complexity**
  - Default Output Complexity, 30% Master/Detail Queries
    Default Dashboard/Exploration percentages
- **8 hours dedicated Batch Window**
  - 40 reports to process
  - 4 Burst reports to 80 recipients with 2 avg. pages

S

Existing server hardware

- 6 existing CPU cores
  (assuming a minimum of 48 GB RAM)

Application Characteristics Estimate

- **Up to 450 named users**
  - Ratios
    4% Authors
    16% Dashboard/Exploration/Story users
    80% Report Live Execution users
- **Concurrency**
  - 3% for report execution and saved output access
  - 9% for Dashboards/Explorations/Stories/Studios
- **Dashboard & Complexity**
  - Default Output complexity, Default Dashboard/Exploration percentages, 4 Dashboard widgets, 30% Master/Detail Queries, 10% uploaded files up to 2M rows
- **8 hours dedicated Batch Window**
  - 200 reports to process
  - 20 Burst reports to 400 recipients with 2 avg. pages

M

Existing server hardware

- 8 existing CPU cores
  (assuming a minimum of 48 GB RAM)

Application Characteristics Estimate

- **Up to 700 named users**
  Ratios
  4% Authors
  16% Dashboard/Exploration/Story users
  80% Report Live Execution users
- **Concurrency**
  - 3% for report execution and saved output access
  - 9% for Dashboards/Explorations/Stories/Studios
- **Dashboard & Complexity**
  - Default Output complexity, Default Dashboard/Exploration percentages, 5 Dashboard widgets, 30% Master/Detail Queries, 10% uploaded files up to 2M rows
- **8 hours dedicated Batch Window**
  - 400 reports to process
  - 40 Burst reports to 600 recipients with 2 avg. pages

L

Existing server hardware

- 10 existing CPU cores
  (assuming a minimum of 64 GB RAM)

Application Characteristics Estimate

- **Up to 900 named users**
  Ratios
  4% Authors
  16% Dashboard/Exploration/Story users
  80% Report Live Execution users
- **Concurrency**
  - 2% for report execution and saved output access
  - 6% for Dashboards/Explorations/Stories/Studios
- **Dashboard & Complexity**
  - Default Output complexity, Default Dashboard/Exploration percentages, 6 Dashboard widgets, 30% Master/Detail Queries, 10% uploaded files up to 2M rows
- **8 hours dedicated Batch Window**
  - 600 reports to process
  - 60 Burst reports to 800 recipients with 2 avg. pages

XL

Existing server hardware

- 14 existing CPU cores
  (assuming a minimum of 96 GB RAM)

Application Characteristics Estimate

- **Up to 1800 named users**
  - Ratios
    2% Authors
    25% Dashboard/Exploration/Story users
    73% Report Live Execution users
- **Concurrency**
  - 1% for report execution and saved output access
  - 4% for Dashboards/Explorations/Stories/Studios
- **Dashboard & Complexity**
  - Default Output complexity, Default Dashboard/Exploration percentages, 7 Dashboard widgets, 30% Master/Detail Queries, 10% uploaded files up to 2M rows
- **8 hours dedicated Batch Window**
  - 800 reports to process
  - 80 Burst reports to 1500 recipients with 2 avg. pages

XXL

Existing server hardware

- 18 existing CPU cores
  (assuming a minimum of 128 GB RAM)

Application Characteristics Estimate

- **Up to 4000 named users**
  Ratios
  1% Authors
  25% Dashboard/Exploration/Story users
  74% Report Live Execution users
- **Concurrency**
  - 1% for report execution and saved output access
  - 3% for Dashboards/Explorations/Stories/Studios
- **Dashboard & Complexity**
  - Default Output complexity, Default Dashboard/Exploration percentages, 7 Dashboard widgets, 30% Master/Detail Queries, 10% uploaded files up to 2M rows
- **8 hours dedicated Batch Window**
  - 1400 reports to process
  - 140 Burst reports to 3000 recipients with 2 avg. pages