



SAP Cloud Application Programming Model

<https://cap.cloud.sap>

Roundtable #4

January 18th, 2023

PUBLIC

Today's hosts:



Sebastian Schmidt



**Michael
Hellenschmidt**

THE BEST RUN



Agenda



Introduction: Recap from last roundtable	5 min
Presentation#1 CAP@TechEd summary (incl. Open Source) – Anna-Maria Moell	5 min
Presentation#2 MTX Services - News & Outlook – Christian Georgi	15 min
Demo#1 Upsert GA Update – Adrian Görler	10 min
Presentation#3 Java Hot Topics – Matthias Braun	10 min
Presentation#4 Node.js Hot Topics – Johannes Vogel	10 min
Announcement#1 reCAP 2023 (&UI5con) is coming! – Sebastian Schmidt	5 min
Open discussion	20 min

Please introduce yourself and interact with your peers



Please give a brief introduction

- In the chat:
 - Name
 - Company
 - Location
 - Role
 - What are you looking for from this group?
 - Your experience with CAP

Summary of Third CAP Customer Roundtable in October 5th

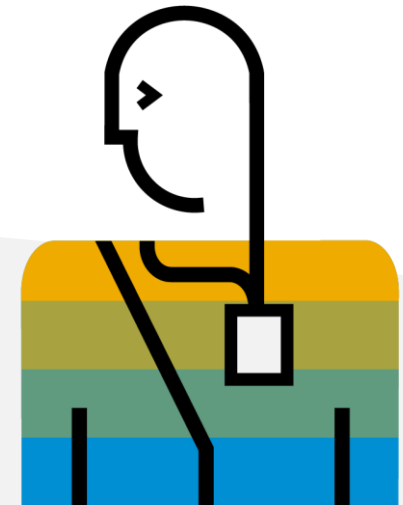
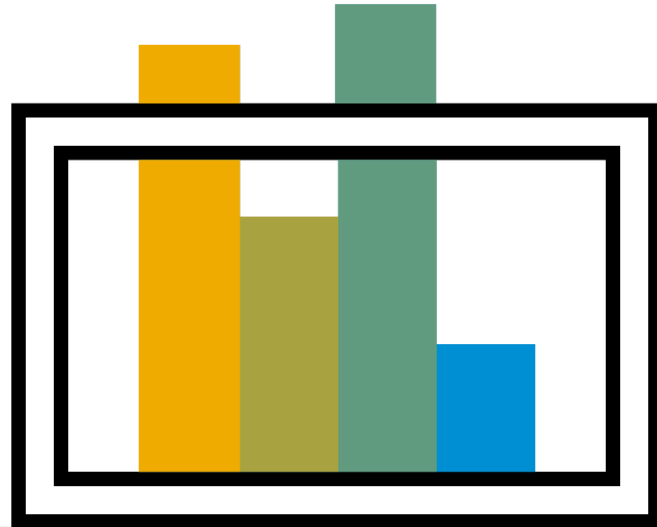


We had:

- Retrospection on last Customer Roundtable
- Streamlined MTX with special focus on Extensibility (How To - Sample Template Project) (Christian Georgi)
- Upsert Support by CDS Runtimes (Adrian Görler /Matthias Braun)
- Intensive Q&A Session addressing
 - Q: Can new extensibility be used productively for MT scenarios? -> See one of today's presentation
 - Q: Is extensibility enabled for all Cloud apps on BTP (similar to S/4)? -> we also try to address this challenge today
 - Q: HANA performance (mass-data) as one major ongoing topic -
> <https://blogs.sap.com/2023/01/04/cap-node.js-performance-testing-and-tuning/> (Martin Stenzig)

Presentation #1

CAP@TechEd summary (incl. Open Source) – Anna- Maria Moell

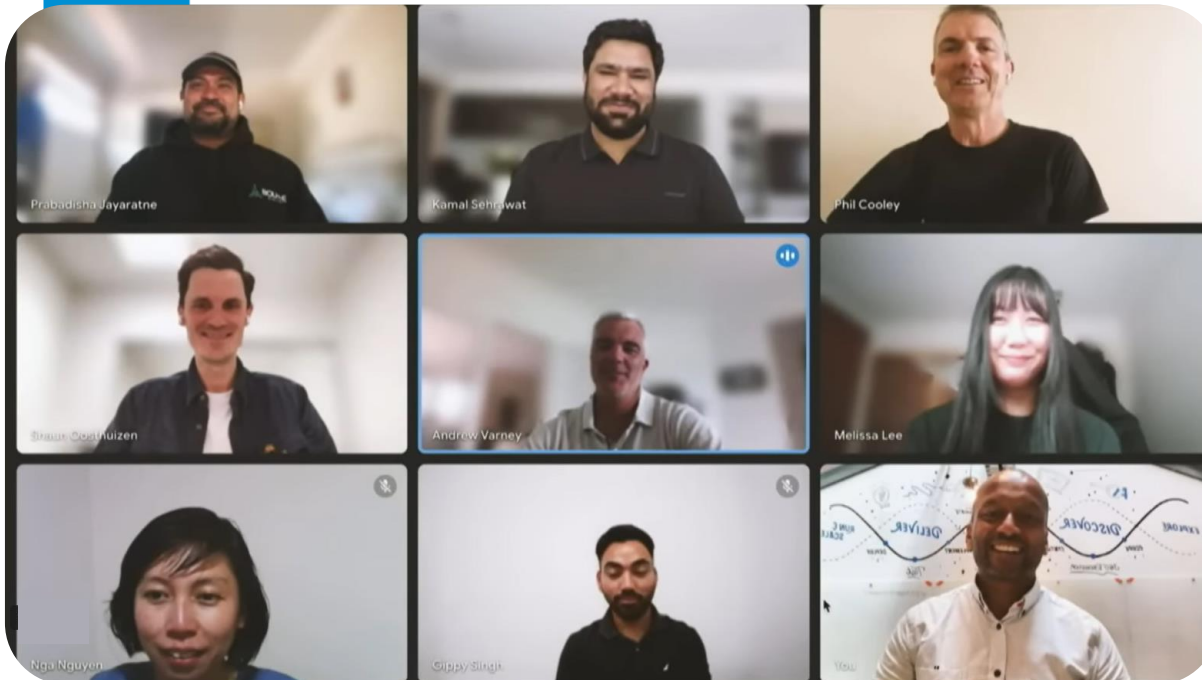


Looking back: CAP@SAPTechEd 2022



Grand Appearance in the
SAP TechEd 2022 Keynote

- presented by Juergen Mueller



Thank you
Bourne Digital Pty Ltd!



Rewatch the
Keynote and Demo



Our CAP Sessions @SAPTechEd 2022



Virtual Lecture

[AD202](#): Discover the Latest Innovations in SAP Cloud Application Programming Model



Hands-on Workshops in Las Vegas

[AD264](#): Boost Application Verticalization, Customization, and Composition

[AD265](#): Bringing Service Integration to Your Fingertips

[AD262](#): Compose Full-Stack Applications in SAP Business Application Studio

More Sessions @SAPTechEd 2022 covering CAP



Now on YouTube!



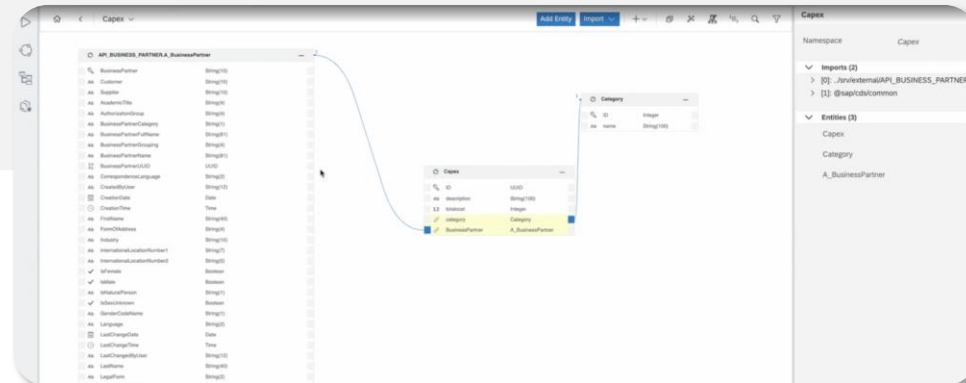
AD113: Develop Full-Stack Applications in SAP Business Application Studio



AD114: Make It Simple: Build Applications with Development Productivity Tools – with Customer Vale



AD301: Simplify Application Composition in SAP Business Application Studio – with Customer Nestlé



CAP News announced @TechEd 2022



- ❑ New Customization and Multitenancy Capabilities → #2 of this session
- ❑ CAP on Kyma Runtime of SAP BTP
- ❑ Typescript & IntelliSense Support
- ❑ OpenAPI Export
- ❑ GraphQL Support for Node.js
- ❑ CAP goes Open Source



CAP goes Open Source

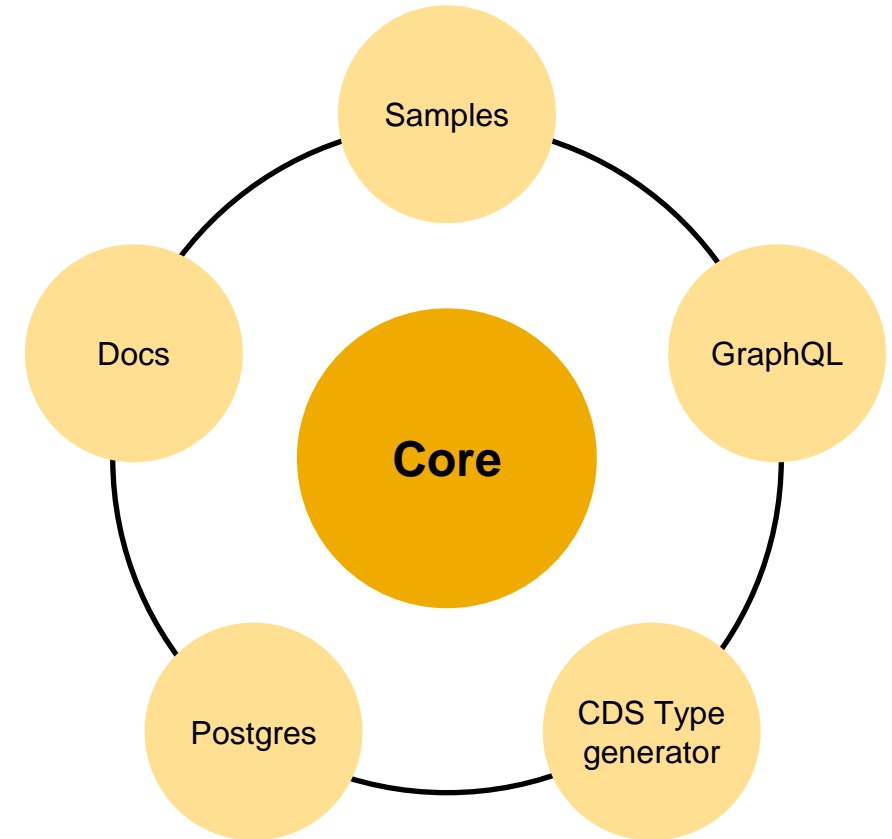


Starting from periphery with packages on which we expect active collaborations by the community

1. CAP Samples → out since 2019
2. GraphQL → published at TechEd 2022
3. PostgreSQL, SQLite Adapter → coming soon
4. CDS Type generator → Q2/2023
5. Documentation → Q2/2023

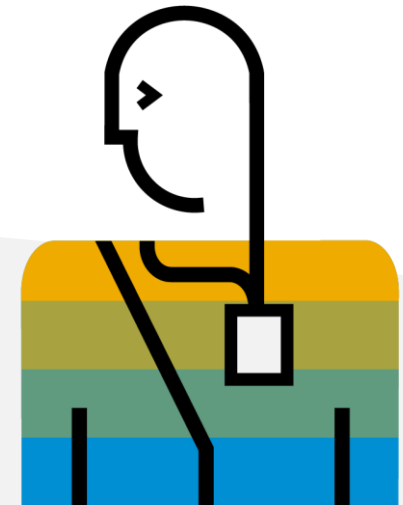
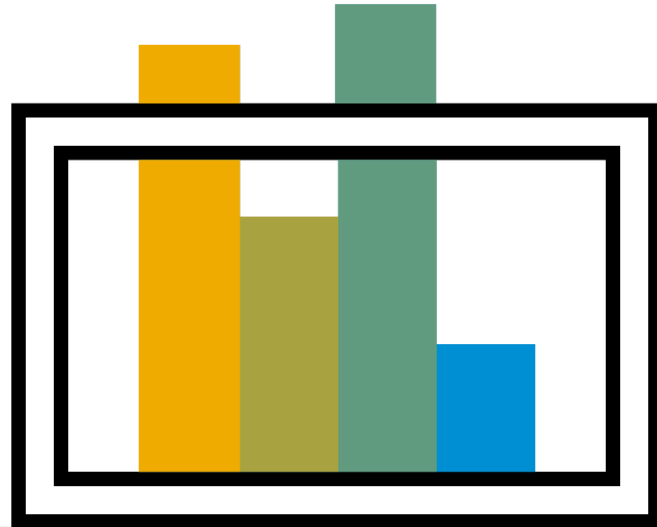
CAP Core parts will be open sourced in later waves

The open source project still needs a name!
Ideas are welcome.



Presentation #2

MTX Services – News & Outlook – Christian Georgi



MTX Services – News & outlook



In recent releases

- [Localization support](#) in extensions, through i18n.properties
- [Initial data support](#) in extensions, through csv files

Upcoming

- Scripts to migrate apps and extensions built with classic multitenancy library
- Deletion of specific extensions

MTX Services – News in Documentation & Samples



New [Incidents management application](#) (at SAP TechEd), showcasing:

- Multitenant extensible SaaS apps (by SaaS Provider)
- Custom extensions (by customers)
- Pre-built extensions (by SAP partners)
- Feature-toggled extensions (by SaaS Provider)

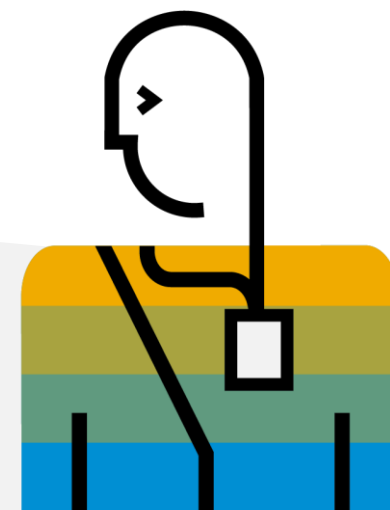
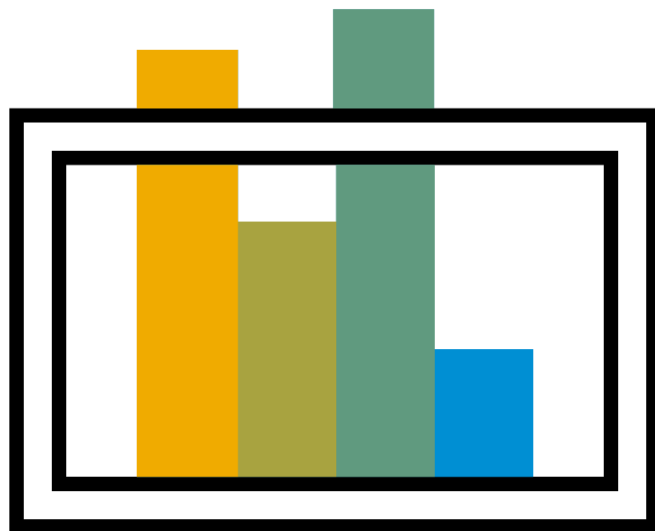
New [end-2-end multitenant CAP sample application](#), featuring:

- User management, push data from SAP S/4HANA, API management, BTP automation, CI/CD, Email, transport management, ...
- See [GitHub](#), [blog post](#)



Demo #1

Upsert GA Update – Adrian Görler



UPSERT Variants



UPSERT w/ single entry (flat)

```
UPSERT.into('Books').entries({ ID: 42, title: 'CAP', year: 2022 })
```

UPSERT w/ many entries (bulk)

```
UPSERT.into('Books').entries(  
  { ID: 42, title: 'CAP', stock: 3 },  
  { ID: 43, title: 'CDS 5', year: 2021 },  
  { ID: 44, title: 'CDS 6', year: 2022 }  
)
```

(Node.js: data with same structure only)

Deep **UPSERT** with *full-set* payload



```
UPSERT.into('Orders').entries(  
  { ID: 42,  
    Items: [  
      { id:1, amount: 2 },           // update  
      { id:2, book:{ ID:251 }},      // insert  
      // { id:3, ...},               // delete  
      { id:4 }                       // keep  
    ]  
  })
```

Deep **UPSERT** with *Delta* Payload

```
UPSERT.into('Orders').entries(  
  { ID: 42,  
    Items: { @delta:[               // delta payload  
      { id:1, amount: 2 },           // upsert  
      { id:2, book:{ ID:251 } },     // upsert  
      { id:3, @removed:true }        // delete  
    ]}  
  })
```




Demo - Deep Upsert with Delta Payload

OData - PATCH Entity Collection with Delta Payload



Use a delta payload to update a collection of entities

```
PATCH /CatalogService/Books
```

```
[  
  { "ID" : 42, "title": "CAP", "stock": 3 },  
  { "ID" : 43, "title": "CDS 5", "year": 2021 },  
  { "ID" : 45, "@removed" : { "reason" : "deleted" } }  
]
```

will be translated into a bulk UPSERT and a DELETE

```
UPSERT.into('Books').entries(  
  { ID: 42, title: 'CAP', stock: 3 },  
  { ID: 43, title: 'CDS 5', year: 2021 })
```

```
DELETE.from('Books').where('ID = ', 45)
```

Much more efficient then \$batch request 😊



Feature Comparison

Variant	CAP Java	CAP Node.js
CDS QL - Flat Upsert	1.28	6.4
CDS QL - Bulk Upsert	1.28	6.4
CDS QL - Deep Upsert	1.28	planned
OData v4 - Delta Payload for Associations	1.30	planned
OData v4 - PATCH Collections with Delta Payload	planned	planned

Documentation

CDS

- [Upsert in CQN](#)

CAP Java

- [Upsert Builder](#)
- [Delta Representation](#)

CAP Node.js

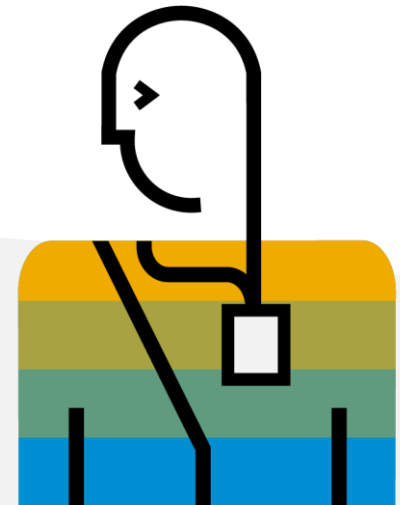
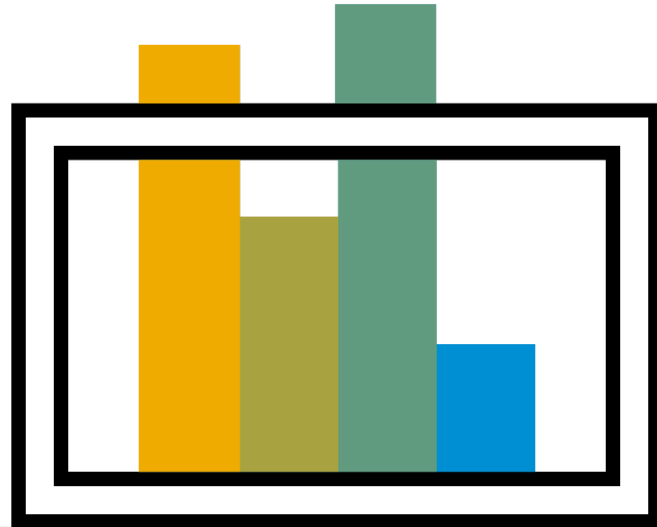
- [Upsert in QL](#)

OData

- [Update Related Entities](#)
- [Delta Payload](#)

Presentation #3

Java Major Release Preview – Matthias Braun





Highlights in 2022

- **Spring Developer Tools** [link](#)
 - Fast roundtrip times in development
 - Local and remote scenario
- **Streamlined MTX support** [link](#)
 - Local MT development / testing
- **Runtime features**
 - Exception handler ([services](#) + [messaging](#))
 - Native [Upsert](#) with delta payloads
- **Performance**
 - Streamlined Odata v4 adapter
 - Reduced CPU consumption to a high degree

Performance Improvements



Request	CPU time ratio (baseline 1.26.0)
GET single entity	86%
GET single entity by navigation	75%
GET entity collection	24%
GET entity collection w/ filter path	29%
GET entity collection w/ to-one expand	35%
GET entity collection w/ search	45%
POST active entity	64%
Draft Create	67%
BATCH w/ 10x GET entity collection	24%
PUT active entity	100%



Plans for 2023

- [JDK 17](#) support
 - Version 1.31.0 in February
 - As basis for Spring Boot 3
- [Spring Boot 3](#) support
 - Version 2.0.0 in April/May
 - **New feature codeline**

JDK and Spring Boot Versions



JDK Release (LTS)	GA	EoL
SAPJVM 8		
SapMachine 11	09/18	09/23
SapMachine 17	09/21	09/26
SapMachine 21	09/23	n/a



Spring Boot Release	GA	EoL	Minimum JDK
2.6.x			8
2.7.x	05/21	11/23	8
3.0.x	11/22	n/a	17



Q3/22

Q4/22

Q1/23

Q2/23

Q3/23

Q4/23

CAP Java 1.30.x (feature

Spring Boot 2.7.x

JDK 8, 11

JDK 17

CAP Java 1.35.x LTS
(maintenance branch)

Spring Boot 3
available



CAP Java
2.0.x (feature
branch)

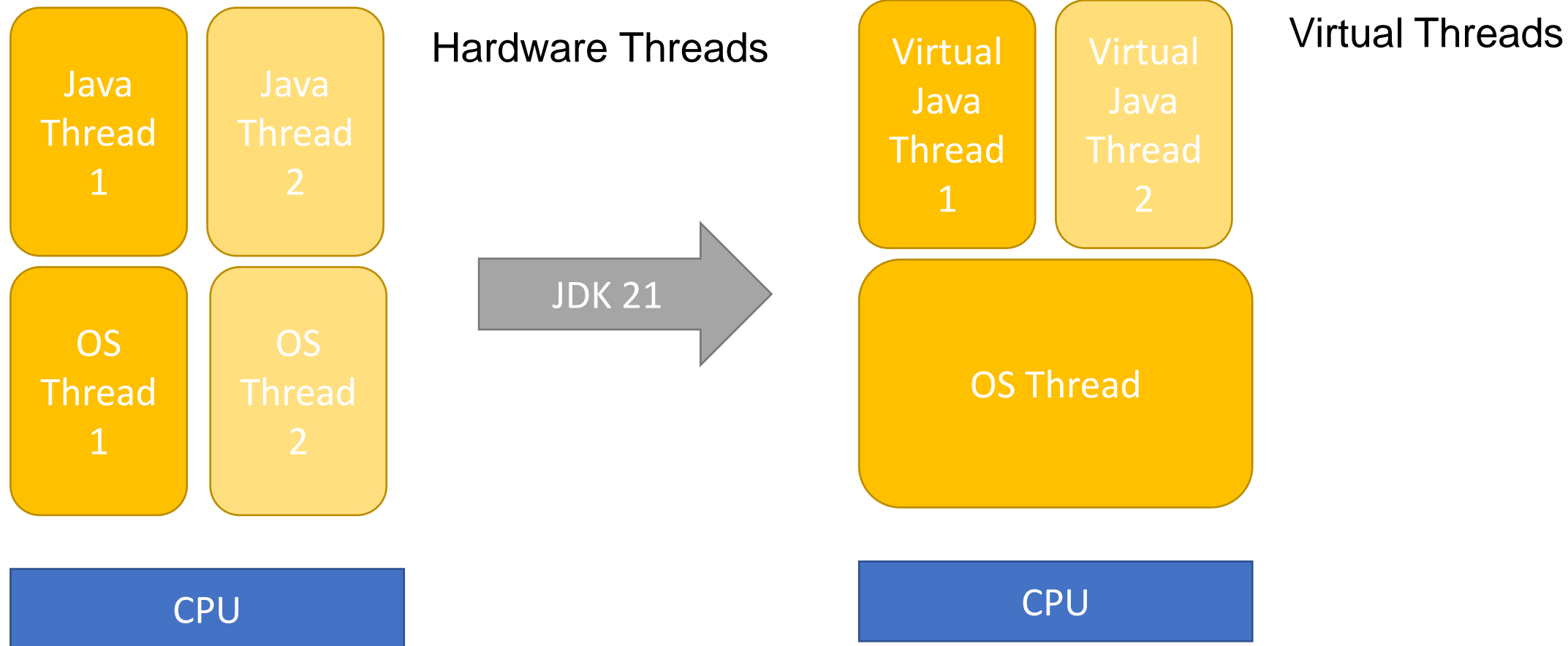
Spring Boot 3

JDK 17

JDK 21

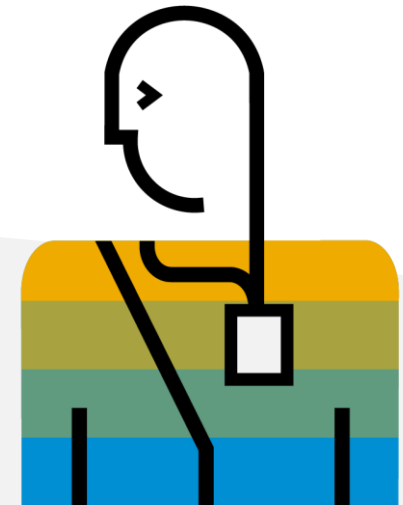
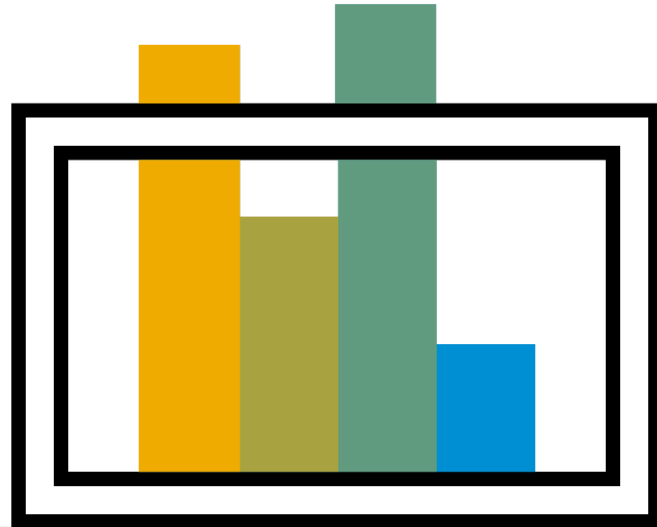


Outlook (JDK21 ~Q4)

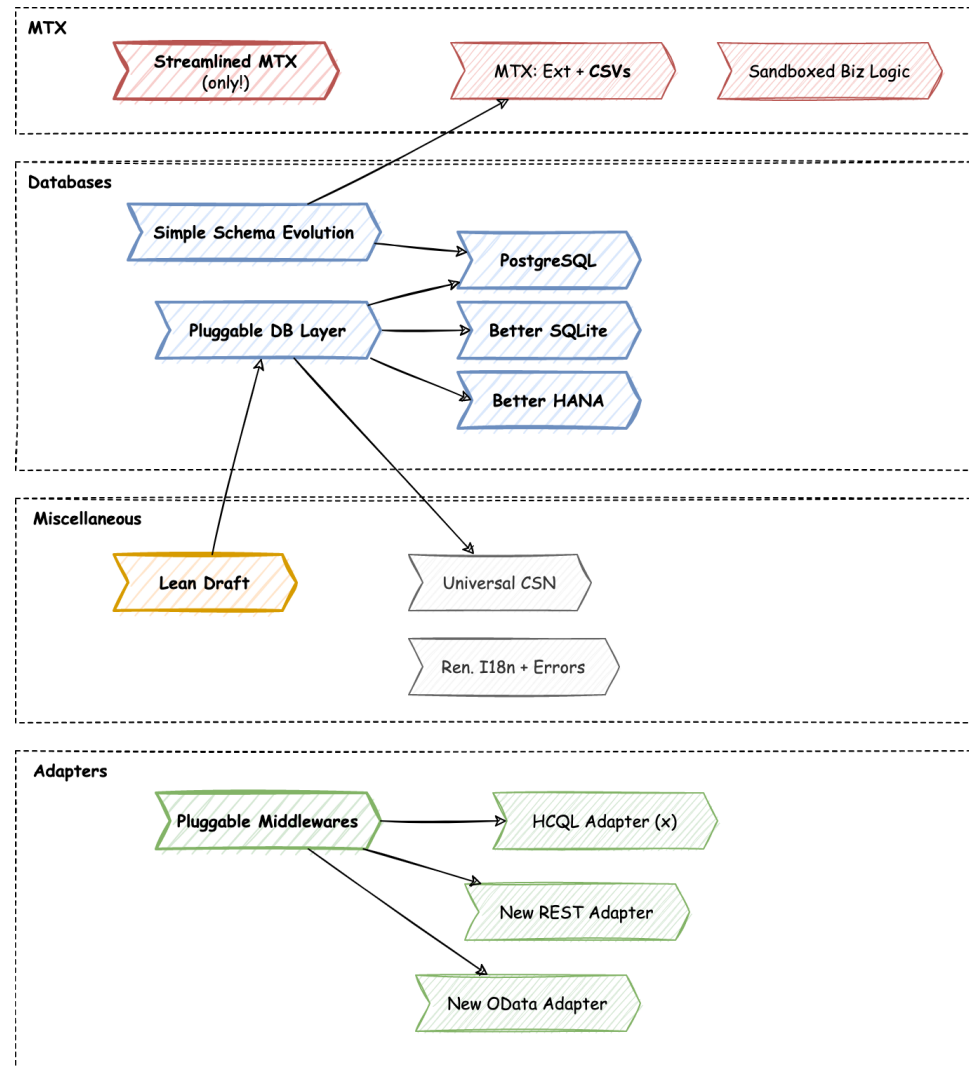


Presentation #4

Node.js Roadmap – Johannes Vogel

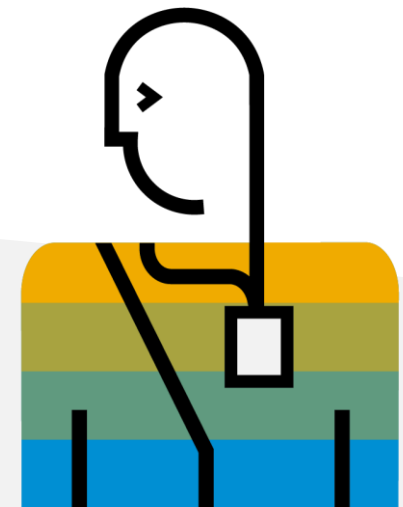
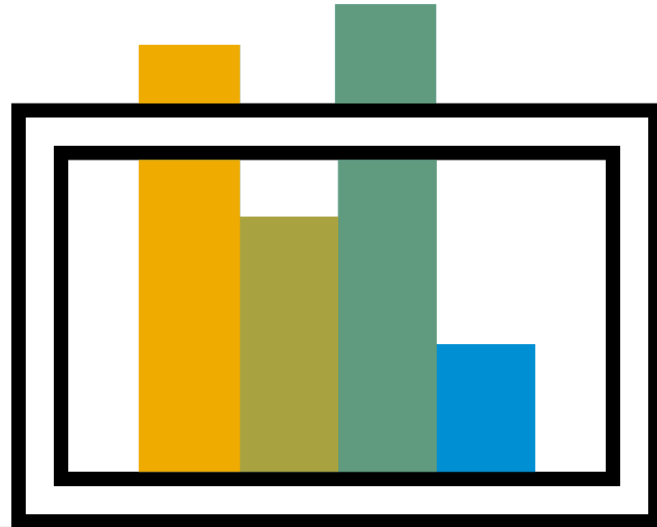


Node.js - Hot Topics



Announcement #1

reCAP 2023 (&UI5con) is coming! – Sebastian Schmidt



SAVE THE DATE FOR THE CONFERENCES OF THE YEAR!



UI5con
learn.explore.connect.

&

re>CAP hybrid

6th of July

7th of July

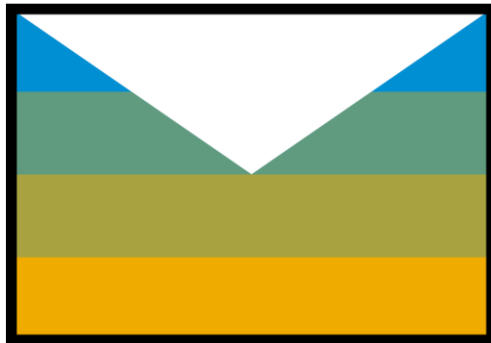
→ onsite in Rot (Germany) + (partially) online ←

→ sponsors & volunteers are welcome! ←

Stay in touch!



Invitations to CAP events via email?



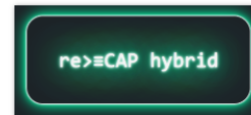
michael.hellenschmidt@sap.com
se.schmidt@sap.com

CAP Events Overview

All available information on past and future CAP events.

re>CAP 2022 hybrid

- **Date:** June 1st + June 2nd, 2022
- **Type:** hybrid
- **Agenda:** will be added in a timely manner



[Announcement](#)

[Landing Page](#)

[Call for session proposals – until 13th of April](#)

[Link to Broadcasting](#)

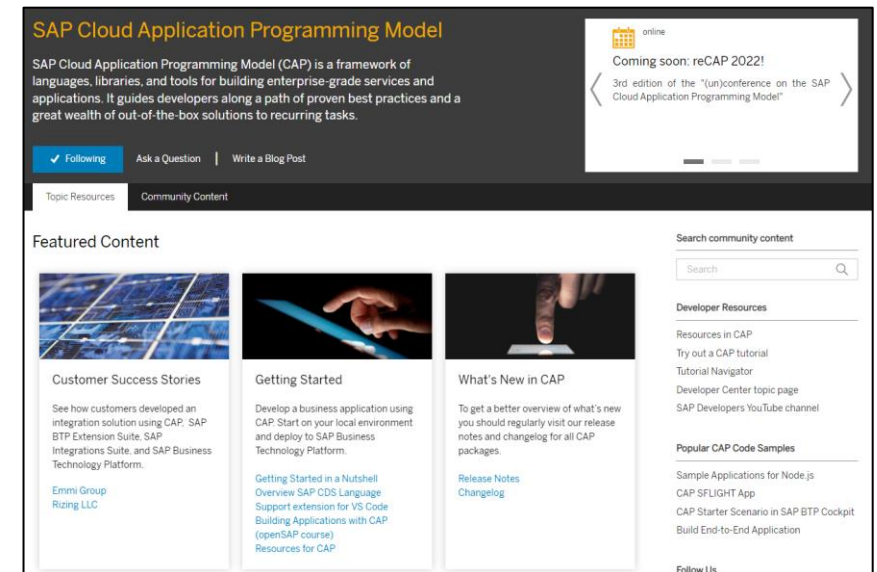
[Meeting Request Day 1 - Meeting Request Day 2](#)

SAP Customer Roundtable April 2022

- **Date:** April 6th, 2022 11 AM EST | 5 PM CEST
- **Type:** Online
- **Agenda:** will be added soon



<https://cap.cloud.sap/docs/events/>



<https://community.sap.com/topics/cloud-application-programming>



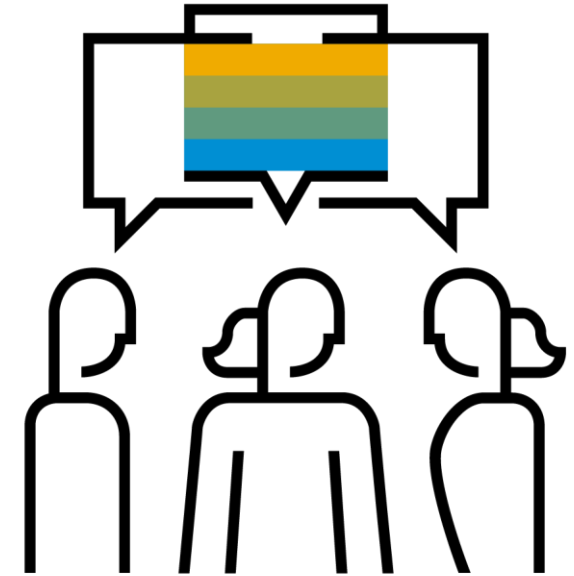
Q&A

Open discussion – what's on your mind regarding CAP?



Possible topics:

- What are you working on?
- What are you interested in learning more about?
- What feedback do you have on our products?
 - What do you like?
 - What do you need CAP to do that it does not?
 - What new capabilities do you need from CAP?
- Are you stuck in your projects?
- Would you like to demo what they you working on?





Thank you.

Contact information:

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