



Les Jeudis de Progress

Préambule

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7 Mai 2020



Les Thèmes

Thèmes	Date
Accès aux Données OpenEdge et autres : Les possibilités (ODBC , REST,oData etc...) : lien	2 Avril 2020
OE 12 : Les raisons de l'adopter, les contraintes , les bénéfices : lien	16 Avril 2020
Advanced Enterprise Database : Rappel des fonctionnalités et avantages : lien	23 Avril 2020
PCA : Les outils et solutions pour vous aider à renforcer vos plans de continuité en production : lien	30 Avril 2020

Les Thèmes

Thèmes	Date
PASOE : API REST , revue des possibilités (mapped REST , Business entity , Webhandler)	7 Mai 2020
CORTICON + OpenEdge : Pourquoi et comment intégrer un moteur de règles dans vos applications OpenEdge ou autres	14 Mai 2020
La sécurité dans vos Systèmes d'Informations. Ce qu'il faut considérer	20 Mai2020
OERA et la nouvelle architecture de référence Progress. Quelles sont les éléments à intégrer (Kinvey, Nativechat...)	28 Mai 2020



PASOE : API REST , revue des possibilités (mapped REST , Business entity , Webhandler)

Démystifier OpenEdge REST Services

Laurent KIEFFER

7 Mai 2020

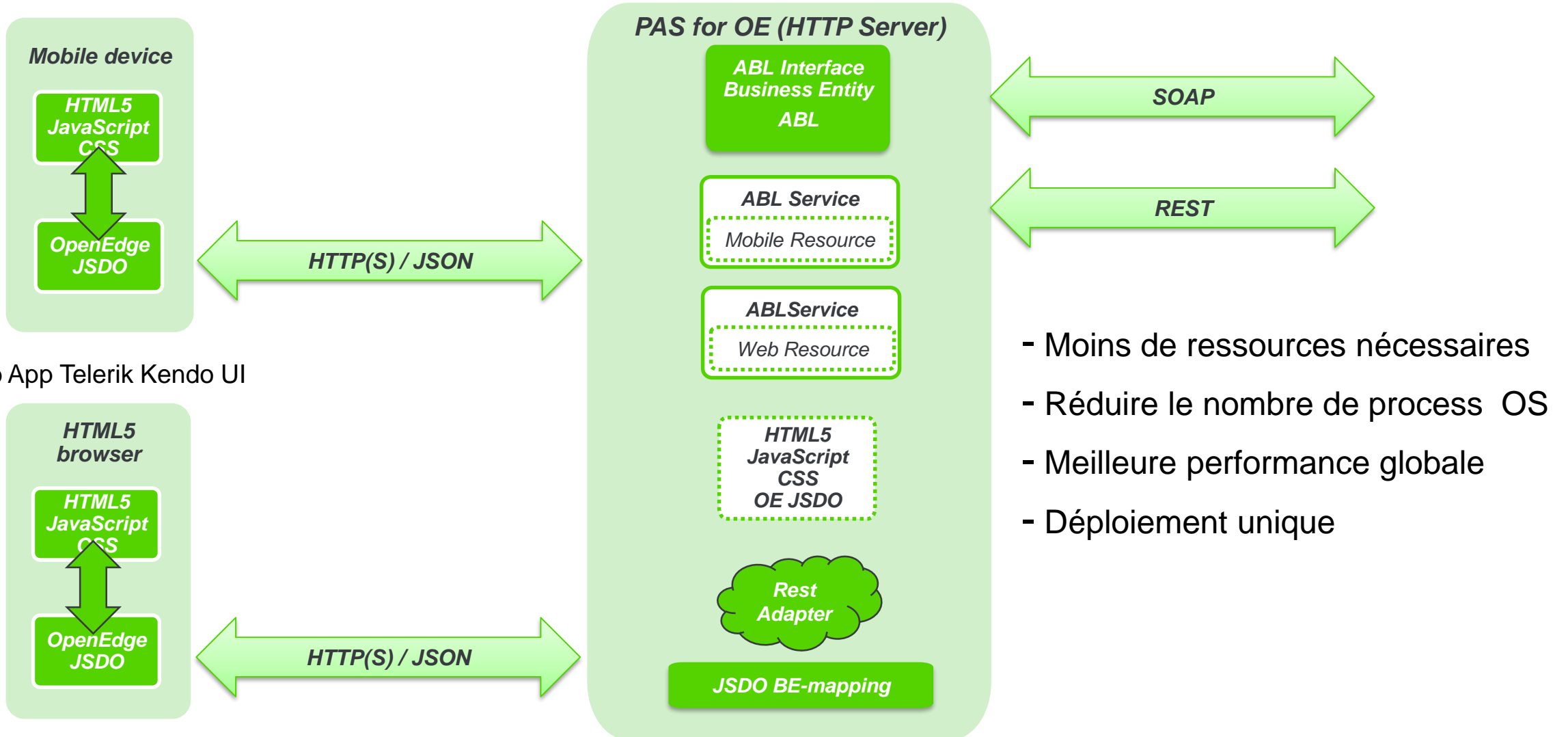


Les 10

1. Ton application tu modulariseras
2. Ton IHM tu sépareras
3. Ta logique métier tu partageras
4. Des services tu exposeras
5. Ton système tu sécuriseras
6. Ton authentification tu unifieras
7. L'OOABL tu adopteras
8. Vers PASOE tu migreras
9. REST tu utiliseras
10. SOAP tu reconsidèreras

Architecture – Progress Application Server for OE

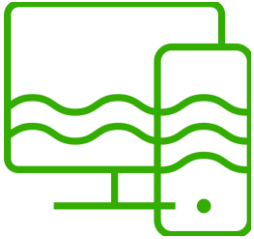
Mobile Apps Natives (nativescript)



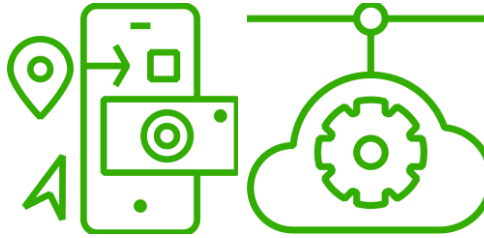
Pourquoi REST est Important?



REST Utilisations



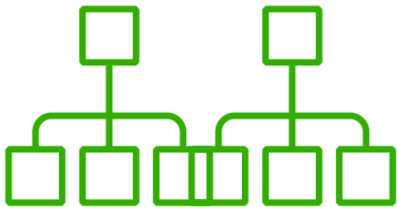
Applications Web



Applications Mobile



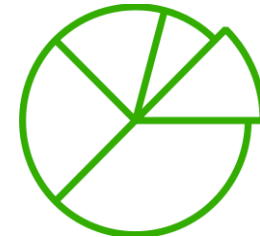
Technologies autres
(Chat...)



Intégration
d'Applications

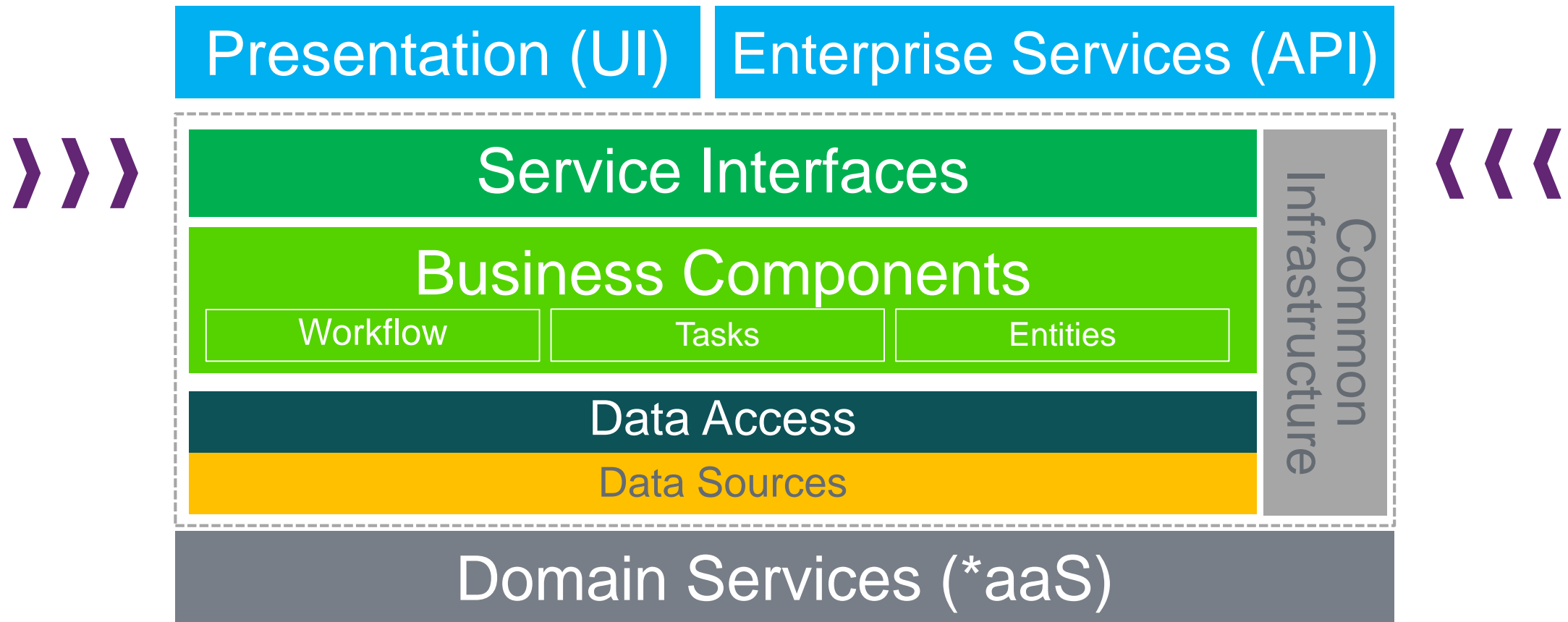


Modularisation via
Microservices



Self-Service
BI et Analytique

OpenEdge Reference Architecture



Couche SI fournie: Mapping, Translation et Auth*

- SI séparé de la logique métier
- de multiples SIs accédant la même logique métier

Quelles sont les options pour 'RESTifier' OpenEdge?



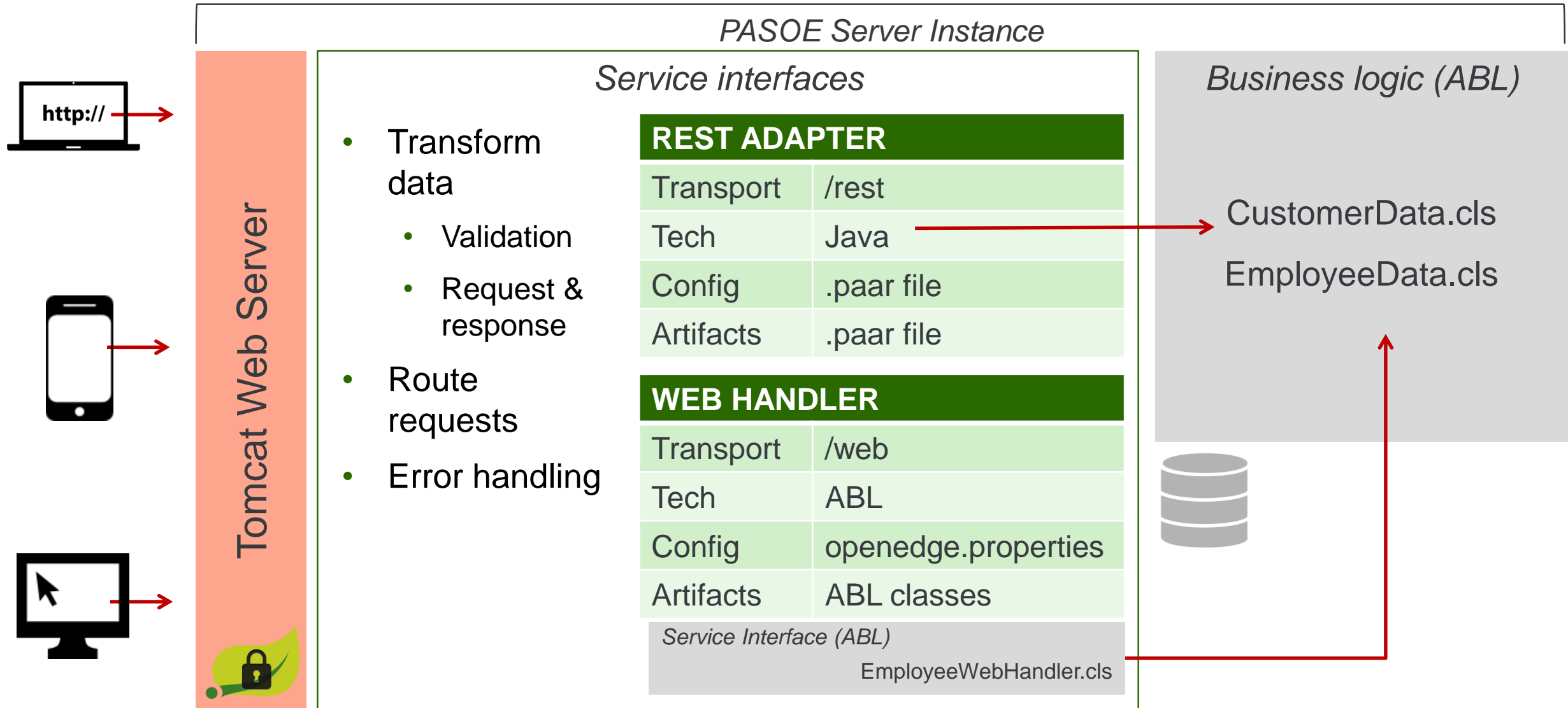
Data Object Services Options

- **Data Object Services (utilisant REST transport)**
- **Data Object Services (utilisant WEB transport)**

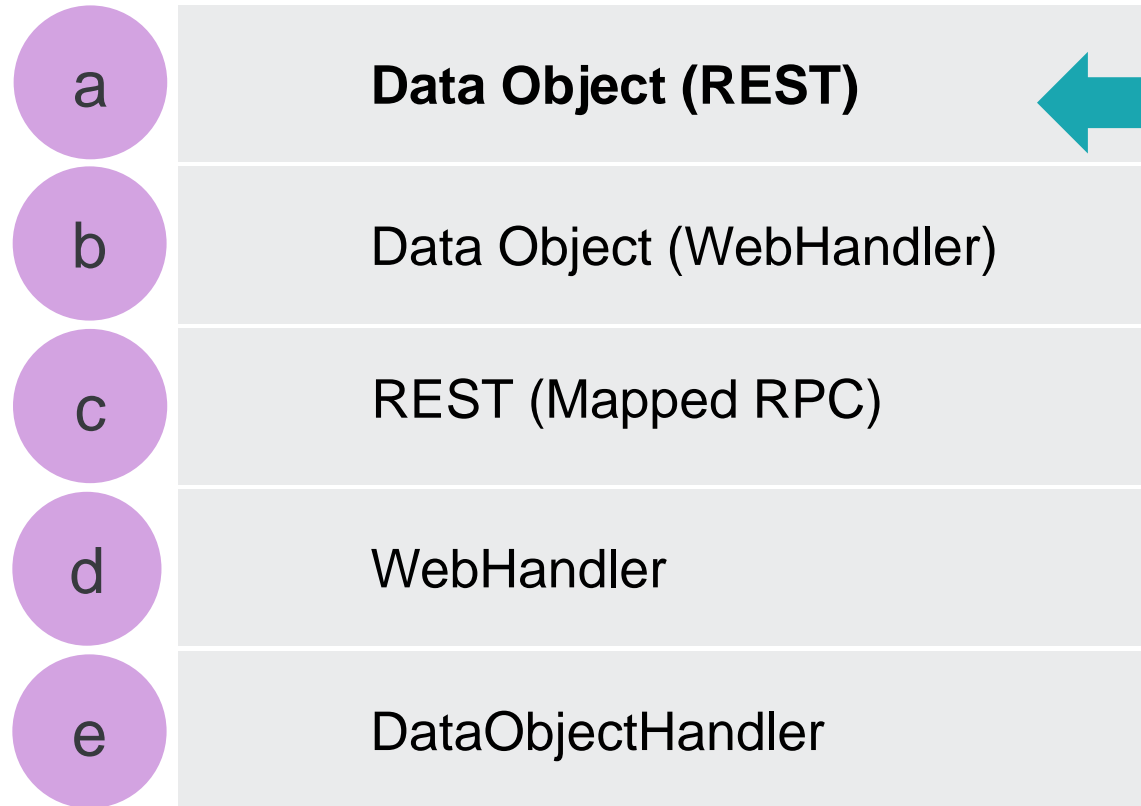
- Mapped RPC REST Service (utilisant REST transport)
- Custom/DIY WebHandler (utilisant WEB transport)
- Data Object Handler WebHandler (utilisant WEB transport)

- OData view of OpenEdge DB (utilisant Hybrid Data Pipeline)

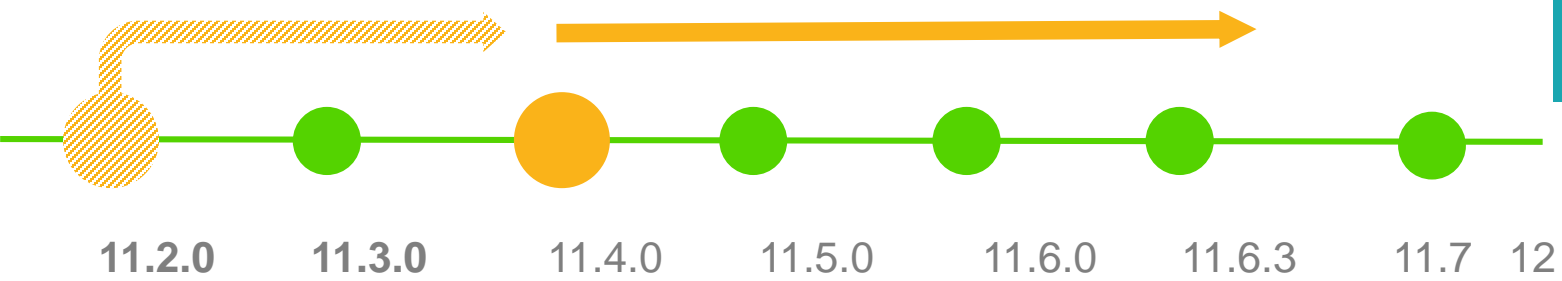
PAS for OpenEdge Architecture (OpenEdge 11.6+)



Approches Interface de Service



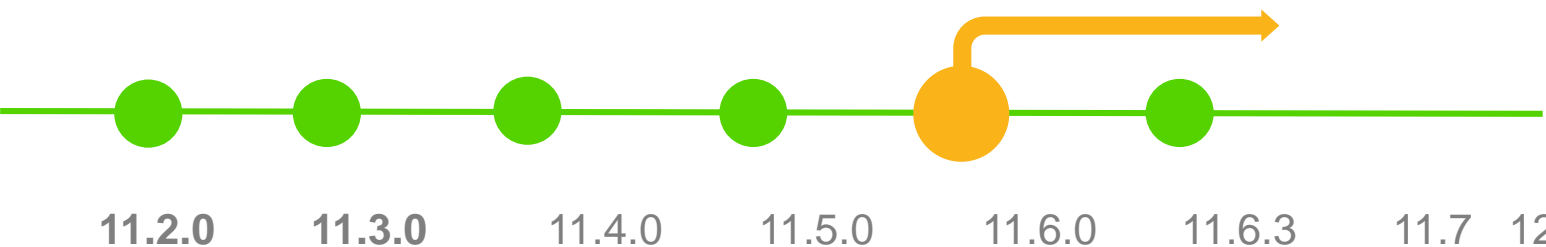
- Autrefois Services mobiles
- Annoter certaines méthodes (w/ particular signatures)
- Très normative
 - Modèle de programmation
 - URI paths
- Utilise le transport REST
- Crée un catalogue de services de données en tant qu'API public



Approches Interface de Service



- Depuis 11.6.3
- Annoter certaines méthodes (w/ particular signatures)
- Assez normatif
- Plus de flexibilité que le mapping
- Utilise le transport WEB
- Exige PAS for OpenEdge
- Crée un catalogue de services de données en tant qu'API public
-





Demo: Business Entity et WebHandler



Invocation Business Entity

```
← → ↻ ⓘ localhost:8810/SportsInc/rest/CustomerService/beDemoCustomer?filter=custnum=1
Apps 🔍 Concur Solutions Jeudis Progress Exemples 4 Février 2020 Community

{
  - dsCustomer: {
    prods:hasChanges: true,
    - ttCustomer: [
      - {
        CustNum: 1,
        Country: "USA",
        Name: "Lift Tours ca marche",
        Address: "276 North Drivefdfd",
        Address2: "",
        City: "Burlington",
        State: "MA",
        PostalCode: "01730",
        Contact: "Gloria Shepley",
        Phone: "(617) 450-0086",
        SalesRep: "HXM",
        CreditLimit: 66700,
        Balance: 904,
        Terms: "Net30",
        Discount: 35,
        Comments: "This customer is on credit hold test",
        Fax: "",
        EmailAddress: ""
      }
    ],
    prods:before: { }
  }
}
```

Invocation WebHandler

```
localhost:8810/SportsInc/web/customer/1|
Apps Concur Solutions Jeudis Progress Exemples 4 Fév
{
  - dsCustomer: {
    - ttCustomer: [
      - {
        CustNum: 1,
        Country: "USA",
        Name: "Lift Tours ca marche",
        Address: "276 North Drivefdffdf",
        Address2: "",
        City: "Burlington",
        State: "MA",
        PostalCode: "01730",
        Contact: "Gloria Shepley",
        Phone: "(617) 450-0086",
        SalesRep: "HXM",
        CreditLimit: 66700,
        Balance: 904,
        Terms: "Net30",
        Discount: 35,
        Comments: "This customer is on credit hold test",
        Fax: "",
        EmailAddress: ""
      }
    ]
  }
}
```

```
localhost:8810/SportsInc/web/sales/BBB
Apps Concur Solutions Jeudis Progress Exemples
{
  - dsCustomer: {
    - ttCustomer: [
      - {
        CustNum: 45,
        Country: "Nederland",
        Name: "Sc Ren Je Rot",
        Address: "Hoofdstraat 45",
        Address2: "",
        City: "Atlanta",
        State: "Utrecht",
        PostalCode: "3572 LA",
        Contact: "R. Trimmer",
        Phone: "030-773411",
        SalesRep: "BBB",
        CreditLimit: 13000,
        Balance: 1170,
        Terms: "Net30",
        Discount: 15,
        Comments: "",
        Fax: "",
        EmailAddress: ""
      }
    ],
  }
}
```

Structure HandleGet

```
DEFINE VARIABLE oWriter AS OpenEdge.Web.WebResponseWriter NO-UNDO.  
DEFINE VARIABLE oBody AS OpenEdge.Core.String NO-UNDO.  
define variable body as longchar.  
DEFINE VARIABLE strEmpNum AS CHARACTER NO-UNDO.  
DEFINE VARIABLE strtest AS CHARACTER NO-UNDO.  
DEFINE VARIABLE strSales AS CHARACTER NO-UNDO.  
define variable beCustomer as beDemoCustomer.  
DEFINE VARIABLE filter AS CHARACTER NO-UNDO.  
DEFINE VARIABLE oFormat AS CHARACTER NO-UNDO.
```

Paramètres

Attribut HTTP →

```
strtest = poRequest:GetPathParameter("Test").  
strEmpNum = poRequest:GetPathParameter("EmpNum").  
strSales = poRequest:GetPathParameter("SalesRep").  
oFormat = poRequest:GetHeader("Accept"):VALUE.
```

Business Entity →

```
beCustomer = new beDemoCustomer().  
  
if strEmpNum <> "" then filter = "custnum=" + strEmpNum.  
else if strSales <> "" then filter = "SalesRep=" + "" + strSales + "".
```

Invocation Entity →

```
beCustomer:ReadbeDemoCustomer(filter,output dataset dsCustomer).
```

```
ASSIGN  
oResponse = NEW OpenEdge.Web.WebResponse()  
oResponse:StatusCode = INTEGER(StatusCodeEnum:OK)  
*/
```

Format Reponse HTTP

```
if oFormat = "*json" then dataset dsCustomer:WRITE-JSON ("LONGCHAR" , body , true).  
else  
if oFormat = "*xml" then dataset dsCustomer:WRITE-XML ("LONGCHAR" , body , true).  
else dataset dsCustomer:WRITE-JSON ("LONGCHAR" , body , true).  
oResponse:ContentLength = length(body).
```

Webhandler et attributs Entête HTTP

Method: GET, Endpoint: http://localhost:8810, Resource: /SportsInc/web/customer/1

Name	Value	Style	Level
Accept	*json	HEADER	RESOURCE

HTTP/1.1 200
Cache-Control: no-cache, no-store, max-age=0, must-revalidate
Pragma: no-cache
Expires: 0
X-XSS-Protection: 1; mode=block
X-Frame-Options: DENY
X-Content-Type-Options: nosniff
Content-Type: application/json
Content-Length: 573
Date: Tue, 05 May 2020 10:27:39 GMT

```
[{"dsCustomer": {"ttCustomer": [{"CustNum": 1, "Country": "USA", "Name": "Lift Tours ca marche", "Address": "276 North Drivefdfff", "Address2": "", "City": "Burlington", "State": "MA", "PostalCode": "01730", "Contact": "Gloria Shepley", "Phone": "(617) 450-0086", "SalesRep": "HXM", "CreditLimit": 66700.0, "Balance": 904.0, "Terms": "Net30", "Discount": 35, "Comments": "This customer is on credit hold test", "Fax": "", "EmailAddress": ""}]}]}
```

Required: Sets if parameter is required
Type: (http://www.w3.org/2001/XMLSchema)string
Options: Add.. Edit.. Remove..
Description:

Method: GET, Endpoint: http://localhost:8810, Resource: /SportsInc/web/customer/1

Name	Value	Style	Level
Accept	*xml	HEADER	RESOURCE

HTTP/1.1 200
Cache-Control: no-cache, no-store, max-age=0, must-revalidate
Pragma: no-cache
Expires: 0
X-XSS-Protection: 1; mode=block
X-Frame-Options: DENY
X-Content-Type-Options: nosniff
Content-Type: application/json
Content-Length: 687
Date: Tue, 05 May 2020 12:11:18 GMT

```
<?xml version="1.0"?>  
<dsCustomer xmlns:xs="http://www.w3.org/2001/XMLSchema-instance">  
<ttCustomer>  
<CustNum>1</CustNum>  
<Country>USA</Country>  
<Name>Lift Tours ca marche</Name>  
<Address>276 North Drivefdfff</Address>  
<Address2/>  
<City>Burlington</City>  
<State>MA</State>  
<PostalCode>01730</PostalCode>  
<Contact>Gloria Shepley</Contact>  
<Phone>(617) 450-0086</Phone>  
<SalesRep>HXM</SalesRep>  
<CreditLimit>66700.0</CreditLimit>  
<Balance>904.0</Balance>  
<Terms>Net30</Terms>  
<Discount>35</Discount>  
<Comments>This customer is on credit hold test</Comments>  
<Fax/>  
<EmailAddress/>  
</ttCustomer>  
</dsCustomer>
```

Required: Sets if parameter is required
Type:
Options: Add.. Edit.. Remove..
Description:

Data Object Service Interaction

UI



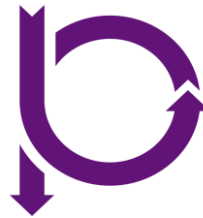
GET <webapp>/web/customer/1

CustomerService.json {catalog}

SI

handler1=demoCustomer: /customer/{empnum}

handler2=demoCustomer: /sales/{salesrep}



HTTP to ABL

BL

beDemoCustomer.cls
ReadbeDemoCustomer(...)



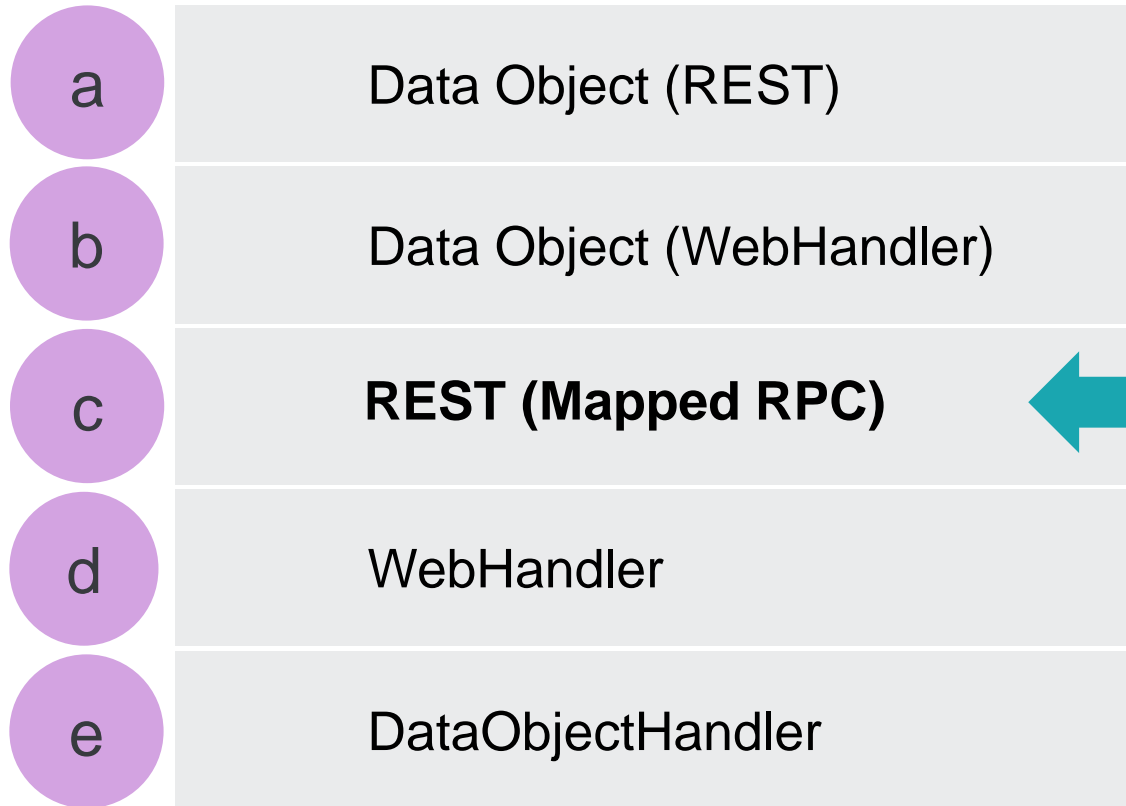
Options personnalisées d'interface de service REST

- Data Object Services (utilisant REST transport)
- Data Object Services (utilisant WEB transport)

- **Mapped RPC REST Service (utilisant REST transport)**
- **Custom/DIY WebHandler (utilisant WEB transport)**
- **Data Object Handler WebHandler (utilisant WEB transport)**

- OData view of OpenEdge DB (utilisant Hybrid Data Pipeline)

Approches Interface de Service



- Anciennement REST Services
- Outil de mapping graphique
- Utilise le transport REST
- Flexible dans les Paths URI



Demo: Rest Mapped RPC



MappedRPC REST Mapping Graphique

REST Resource URI Editor

Service relative URI: /ProcedureService Edit...

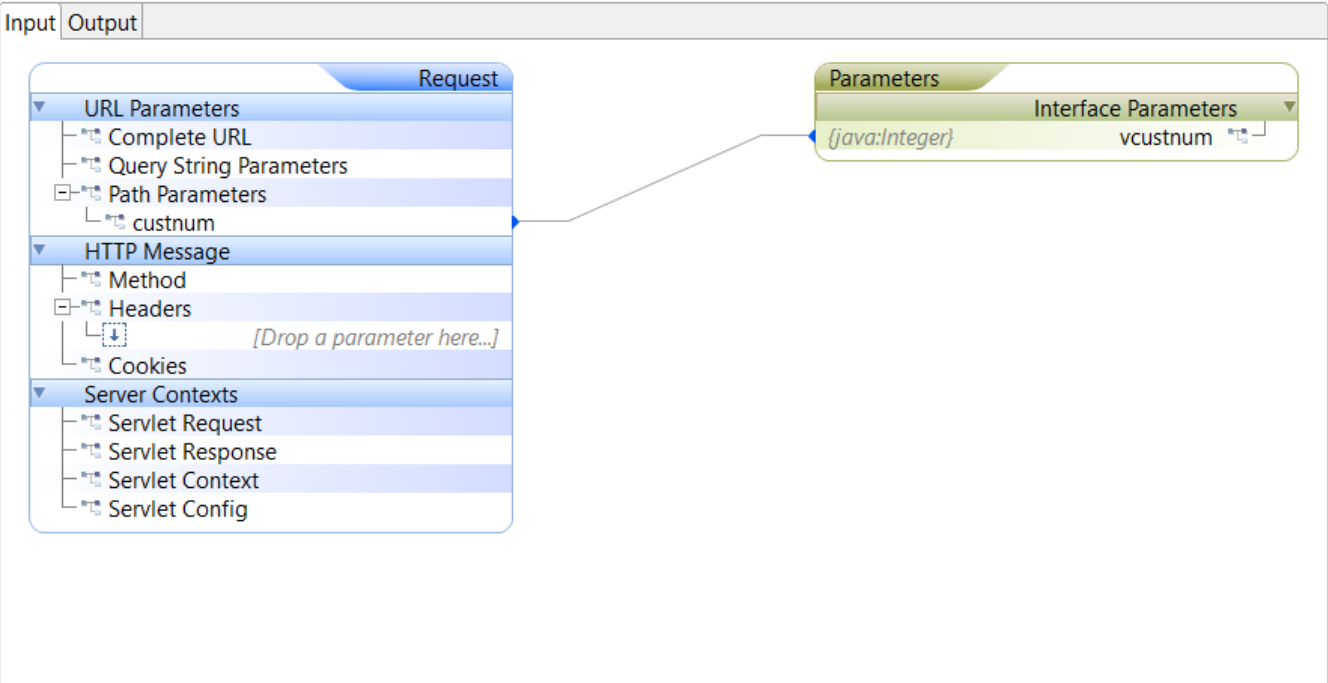
Resources

- /ReadDataSet
- /ReadDataSet/{custnum}

Verb Association

Verb='GET'	DatasetSample..ReadDatasetCust	...	✖
Verb='PUT'		...	✖
Verb='POST'		...	✖
Verb='DELE...		...	✖

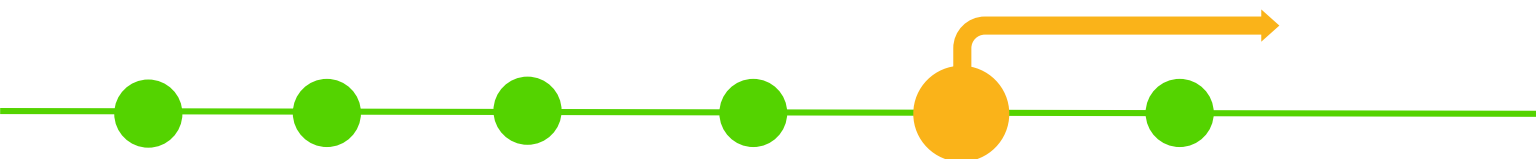
Mapping Definitions



Approches Interface de Service



- Associer une classe WebHandler OOABL à un modèle URI
- Utilise le transport WEB
- Nécessite PAS for OpenEdge
- TRÈS flexible, URI adaptable
- Faites ce que vous voulez dans le code/ABL
- Versions in-the-box
 - `OpenEdge.Web.WebHandler`
 - `OpenEdge.Web.CompatibilityHandler`
 - `OpenEdge.Web.DefaultHandler`



11.2.0 11.3.0 11.4.0 11.5.0 11.6.0 11.6.3 11.7 12

DIY WebHandler Interaction

UI

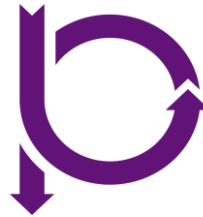


GET <webapp>/web/talks

SI

handler1=OpenEdge.Web.DataObject.TalksWebHandler: /talks/

TalksWebHandler.cls

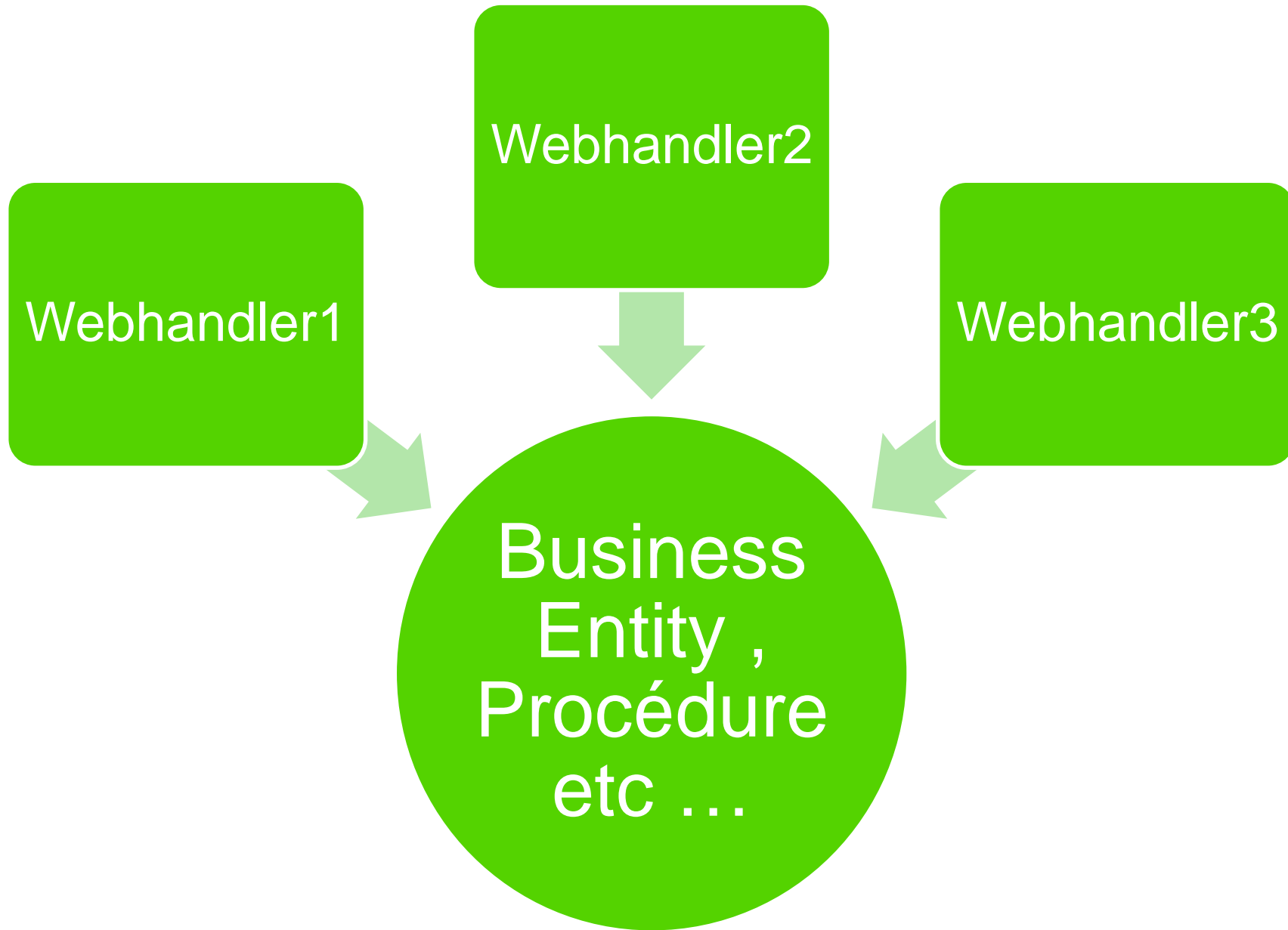


HTTP to ABL

BL

read_talk.p
create_talk.p





Approches Interface de Service



- WebHandler générique prédéfini
- Mapping défini dans fichier JSON
- TRES Flexible
- Nécessite PAS for OpenEdge

11.2.0 11.3.0 11.4.0 11.5.0 11.6.0 11.6.3 11.7 12

DataObjectHandler: Ce que je peux Mapper ?

```

"/talks/{talk-id}": {
  "POST": {
    "contentType": "application/json",
    "statusCode": 201,
    "options": {
      "responseEnvelope": true
    },
    "entity": {
      "name": "logic/talk/new_talk.p",
      "function": "add_talk",
      "arg": [ {
        "ablName": "ttTalk",
        "ioMode": "INPUT",
        "ablType": "table",
        "msgElem": { "type": "body",
                    "name": null }
      }, {
        "ablName": "pcChar",
        "ioMode": "output",
        "ablType": "character",
        "msgElem": { "type": "header",
                    "name": "location" }
      }
    ]
  }
}

```

URI mapping

```

/talks
/{service}/data/{resource}
/{collection}/{coll-id}

```

Status codes

```

202 / Accepted
418 / I'm a teapot

```

Envelopes

```

requestEnvelope : "input"
errorEnvelope   : "oops"

```

IO Modes

```

"input" "output" "input-output" "return"

```

ABL data types (also extent variants)

```

"character", "longchar", "integer", "int64", "decimal",
"logical", "rowid", "recid", "date", "datetime", "datetime-tz",
"raw", "memptr", "dataset", "temp-table",
"class <ooabl.type.name>"

```

HTTP Message elements

Request-only	"path", "query", "httpMethod", "request", "constant"
Response-only	"none", "statusCode", "statusReason"
Both	"cookie", "header", "field", "body"

Quelles Options choisir ?



Conception IHM Web ou Mobile ...

Nous recommandons...

- **Data Object Services (utilisant WEB transport) & PAS for OpenEdge**
- **Data Object Services (utilisant REST transport) si Classic AS**
- Data Object Handler WebHandler (WEB) & PAS for OpenEdge
- DIY WebHandler (utilisant WEB transport) & PAS for OpenEdge
- Mapped RPC REST Service (utilisant REST transport)
- OData view of OpenEdge DB (utilisant Hybrid Data Pipeline)

Si vous concevez une B2B REST API?

- Data Object Services (utilisant WEB transport) & PAS for OpenEdge
- Data Object Services (utilisant REST transport) if Classic AS

Nous recommandons ...

- **#1 DataObjectHandler WebHandler (WEB) & PAS for OpenEdge**
- **#2 DIY WebHandler (utilisant WEB transport) & PAS for OpenEdge**
- **“Mapped RPC REST Service (utilisant REST transport) si Classic AS”**
- OData view of OpenEdge DB (utilisant Hybrid Data Pipeline)

Si vous exposez du REST “standardisé” ?

- Data Object Services (utilisant WEB transport) & PASOE
- Data Object Services (utilisant REST transport) if Classic AS

- DataObjectHandler WebHandler (WEB) & PAS for OpenEdge
- DIY WebHandler (utilisant WEB transport) & PAS for OpenEdge
- Mapped RPC REST Service (utilisant REST transport) if Classic AS

- **OData visualisant OpenEdge DB (utilisant Hybrid Data Pipeline)**

Conclusions

- Avec PASOE l'exposition de Service REST est flexible
- Les WebHandler permettent de gérer tout type d'argument HTTP
 - GET , POST, etc
 - Entêtes
 - WebRequest
 - WebResponse
 - Status Code
- Tout traitement existant peut être exposé sous forme d'API REST
 - Procédure (.p)
 - Classes (.cls)

Prochaines Formations Virtuelles (Français)

Thèmes	Dates
Administration de base de Données (DBA) R.12.x https://www.progress.com/services/education/instructor-led/europe/openedge-database-administration-bootcamp	27-30 Avril
Formation ABL GUI https://www.progress.com/services/education/instructor-led/europe/progress-abl-gui-bootcamp-france	25-29 Mai
Optimisation des performances des bases de données OpenEdge https://www.progress.com/services/education/instructor-led/europe/openedge-database-performance-tuning	25-27 Mai
Programmation Orientée Objet Avancée conforme OERA https://www.progress.com/services/education/instructor-led/europe/advanced-object-oriented-programming-in-oera	8-10 Juin
Progress Academy Avancée https://www.progress.com/services/education/openedge/advanced-openedge-academy	8-12 Juin
Progress Application Server for OpenEdge (PASOE) https://www.progress.com/services/education/instructor-led/europe/progress-application-server-for-oe-admin	15-17 Juin



Q&R



