Progress

OpenEdge Technologie Webinare

Webinare 2020

OpenEdge Schnittstellen für Web und Mobile Apps

Stefan Bolte

Principal Sales Engineer

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Ihr Ansprechpartner

Stefan Bolte

stefan.bolte@progress.com

+49 221 65088070

Principal Sales Engineer

Progress Software GmbH

Köln

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OpenEdge Technologie Webinare in DACH

Termin	Titel	Beschreibung
21. April	OpenEdge 12.2	Am 2. April 2020 wird OpenEdge 12.2 freigegeben. Ein Überblick über die Neuerungen, unter anderem zur Performance der ABL, der Datenbank und der DataServer und dem neuen Product Lifecycle.
19. Mai	SQL und Co.	Der Zugriff auf Anwendungsdaten für Analyse und Reporting ist ein zentrales Thema. Wir möchten die Werkzeuge und Schnittstellen, die OpenEdge zur Verfügung stellt, im Überblick vorstellen.
16. Juni	**OpenEdge Schnittstellen für Web und Mobile Apps**	**Der Progress Application Server für OpenEdge bietet universelle Schnittstellen für den Zugriff von Webanwendungen und Apps auf die server-seitige OpenEdge Anwendung. Welche Optionen stehen Ihnen zur Verfügung?**
8. Juli	Continuous Integration und Continuous Delivery für OpenEdge	Für den Prozess der Software-Erstellung (Build Process) mit OpenEdge stehen Werkzeuge zur Automatisierung zur Verfügung. Das gilt auch für die Auslieferung von Updates in den Progress Application Server für OpenEdge. Diese Webinar gibt einen Einblick in die Möglichkeiten.
15. September	Web-FrontEnds erstellen mit UniteUX	Progress UniteUX ist ein Werkzeug zum schnellen Erstellen von Responsive WebAnwendungen. Wir stellen den Stand der Entwicklung vor.
6. Oktober	Authentifizierung und Autorisierung mit PASOE	Der Progress Application Server für OpenEdge (PASOE) verwendet bekannte Technologien, um Authentifizierung und Autorisierung zu implementieren. Sie arbeiten auch gut mit externen Komponenten wie LDAP Directory Servern und Secure Token Servern zusammen. Ein Einstieg ins Thema.

Diese Termine können sich ändern. Aktuell immer hier auf der Homepage der Webinar-Serie.
https://www.progress.com/campaigns/de/openedge/technologie-webinare-2020

Weitere Webinare: https://www.progress.com/campaigns/openedge/oe-emea-openedge-live-talks-webinar

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Agenda

- OpenEdge Services
- REST Techniques in OpenEdge
- Progress Data Object Services
- Web Handler Services
- Data Object Handler Services

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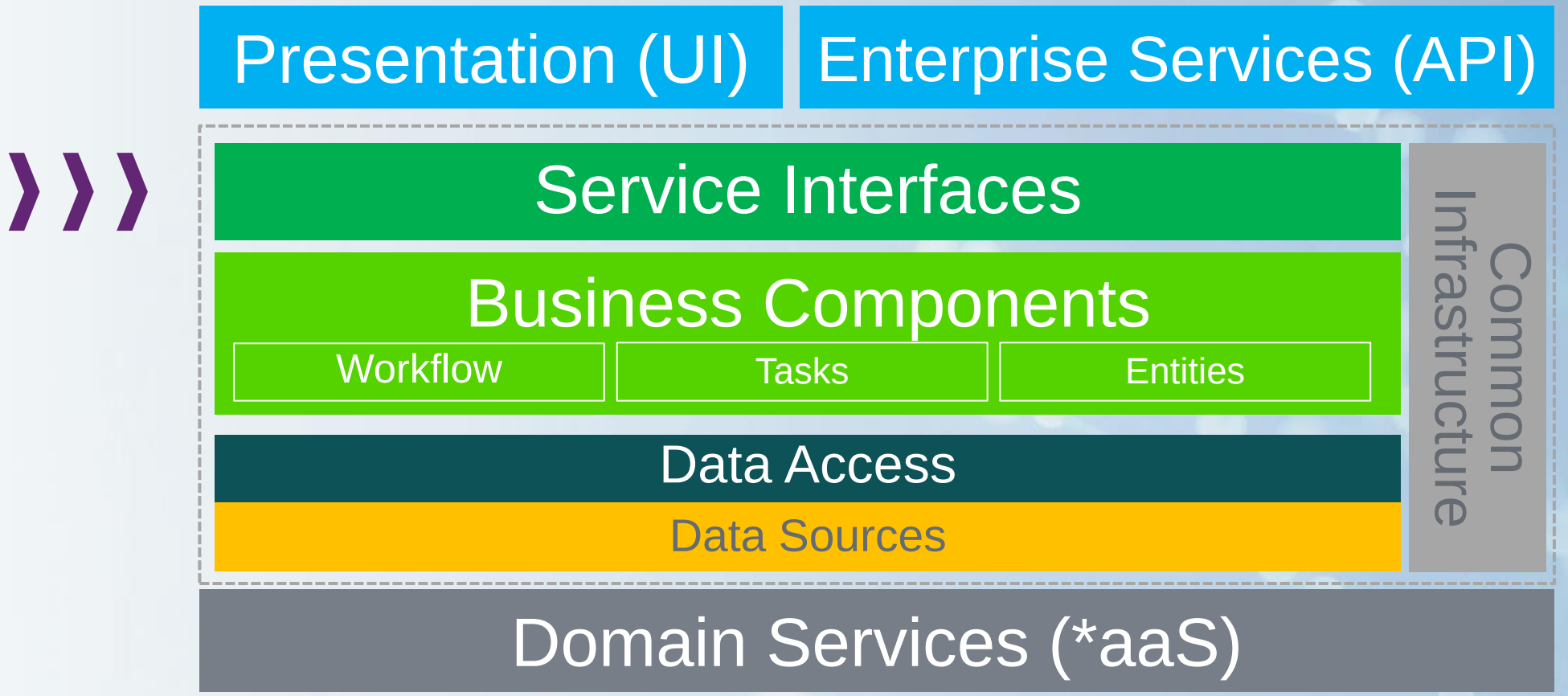
OERA



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Use Cases

- Responsive Web Applications
- Mobile Apps
- Next big thing… Chat bots, Digital Voice Assistants
- Application integration: Public and Partner APIs
  - Custom REST
  - Standardized REST (OData)
- Application modularization
  - Private Microservice interfaces (can be REST)
- BI, Reporting, Analytics
  - Particularly standardized REST (OData)

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What is HTTP?

Hyper**t**ext **T**ransfer **P**rotocol (HTTP) is a method for encoding and transporting information between a client (such as a web browser) and a web server. HTTP is the primary protocol for transmission of information across the Internet.

HTTP follows a request-response paradigm in which the client makes a request and the server issues a response that includes not only the requested content, but also relevant status information about the request.

Using HTTP and HTML, clients can request different kinds of content (such as text, images, video, and application data) from web and application servers that host the content.

HTTP resources such as web servers are identified across the Internet using unique identifiers known as Uniform Resource Locators (URLs).

https://www.nginx.com/resources/glossary/http/

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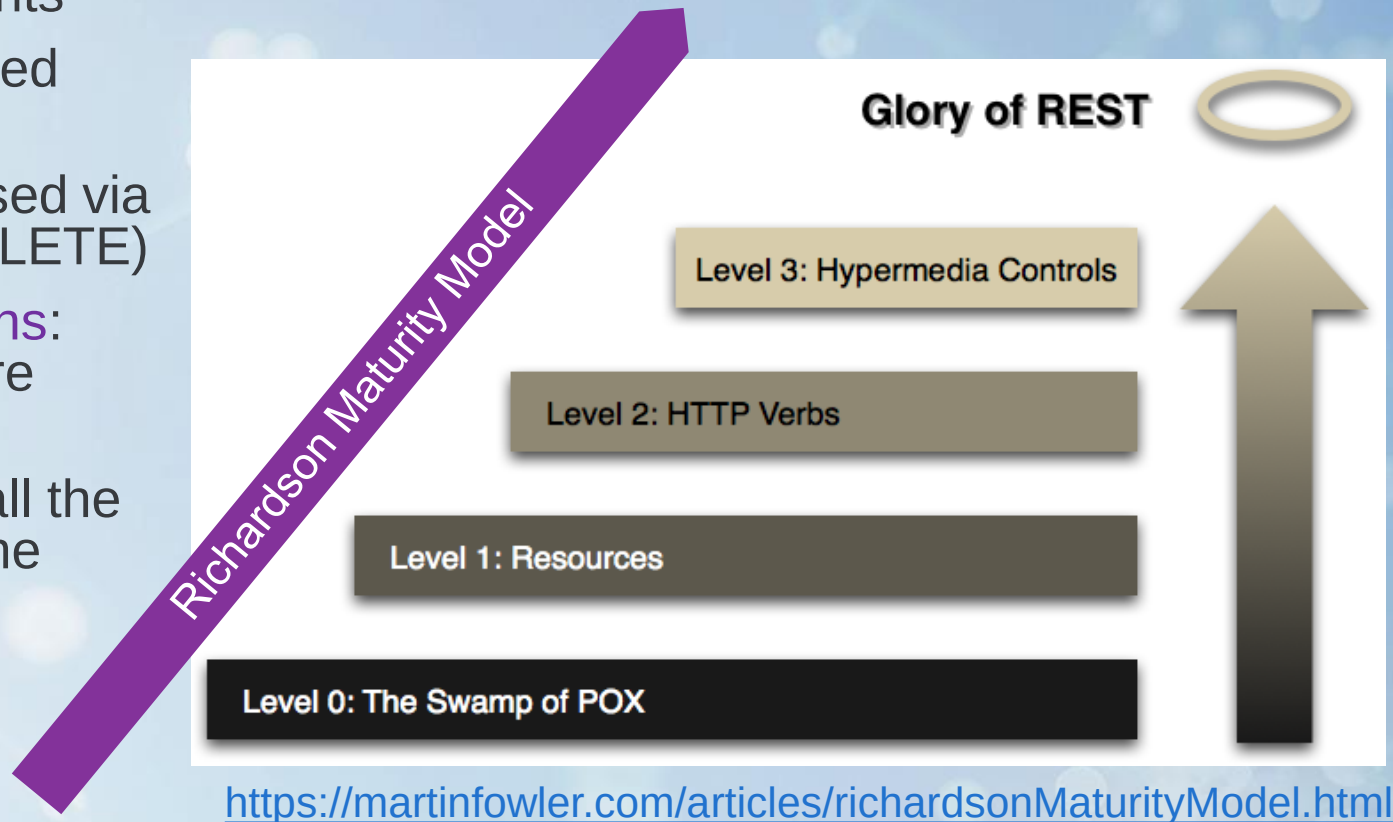
What is REST?

REST = **RE**presentational **S**tate **T**ransfer

REST is an architectural style for network based software that requires stateless, cacheable, client-server communication via a uniform interface between components.

Understood as HTTP with strong constraints

- Named resources: resources are named using a URL
- Uniform interface: all resources accessed via generic interface (GET/PUT/POST/DELETE)
- Interconnected resource representations: the representations of the resources are inter-connected using URLs
- Stateless: each request must contain all the information necessary to understand the request; cannot take advantage of any stored context on the server



https://martinfowler.com/articles/richardsonMaturityModel.html

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What's the challenge with REST Interfaces?

There are different flavors of REST. Different use cases may require different styles of REST APIs and Service Interface approaches…

- B2B REST APIs may require custom headers, query string support
- Some REST clients want 'standards compliance' (SFDC, Dynamics, BI…)
- ABL applications have various approaches for providing one
  - By server architecture
  - By target use case
  - By development approach (product, services)

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Service Interfaces

- Service interfaces provide the translation layer between a request and the underlying business services
  - Route requests
  - Compose responses
  - Error handling
- Provide authentication and authorization
- Translate input / output formats to and from domain model
  - JSON/XML/text into ProDataSet/Temp-Table/objects
  - Data validation
- Service interfaces are NOT business domain services or logic (like tax calculations, master data maintenance, order entry, etc.)
- Can be multiple Service Interfaces to the same backend business services

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History of REST with OpenEdge

REST Mgr. /PDO JSDO and Business Entities	OE 11.2, Java based, Classic AppServer & PASOE
	REST Transport, .paar file, generated by @annotations
REST Mrg. / PDO Mapped RPC	OE 11.2, Java based, Classic AppServer & PASOE
	REST Transport, .paar file, manual REST Mapping
REST Mgr. / PDO and Business Entities	OE 11.6, ABL Based, PASOE only
	Web Transport, .gen file, generated by PDSOE w @annotations
WebHandler / manually	OE 11.6, ABL based, PASOE only, including WebSpeed
	Web Transport, Handler URL Pattern, Handler Class
WebHandler / Data Object Handler (DOH)	OE 11.6.3, ABL based, PASOE only
	Web Transport, generic Handler, configuration by JSON Map

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REST Options in OpenEdge 12.2

- Data Object Service (PDO) with JSDO
- Custom/DIY WebHandler
- Data Object Handler, manual map configuration

- OData view of OpenEdge DB (using Hybrid Data Pipeline)
- OData view of OpenEdge REST API (using HDP + ‘Autonomous Rest Connector’)

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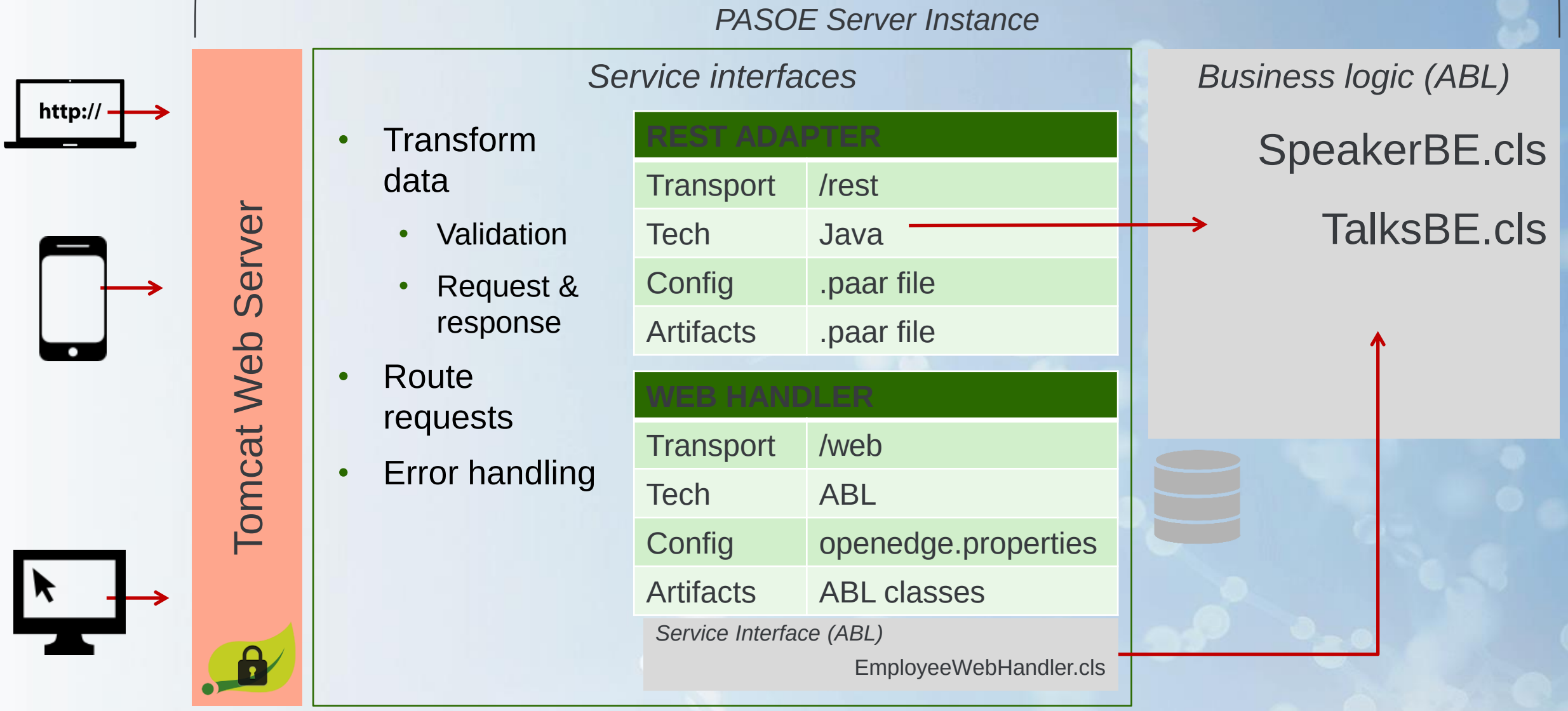
Data Object Service

PASOE Architecture (11.6+)



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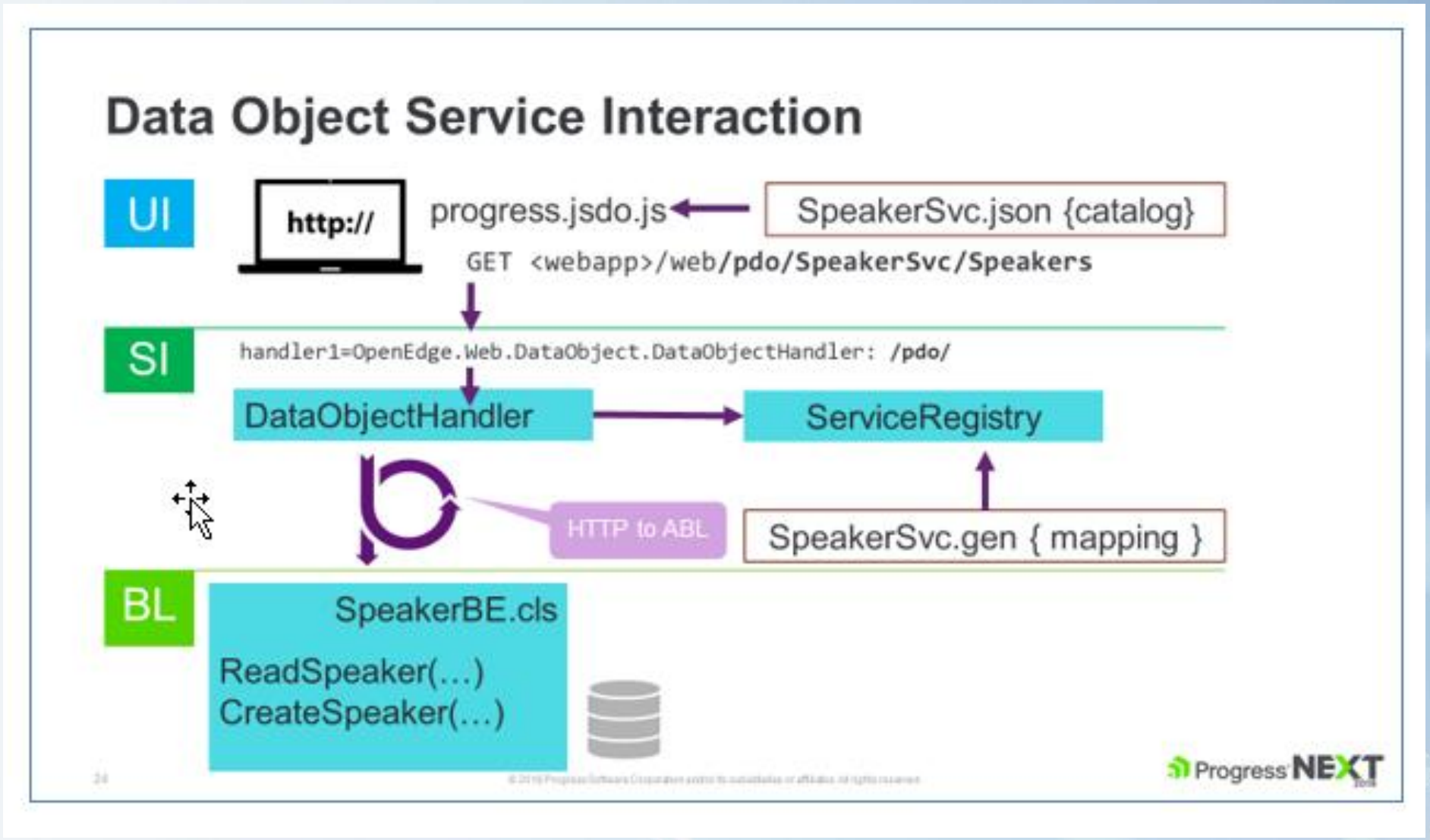
Data Object Service / an all-inclusive Solution



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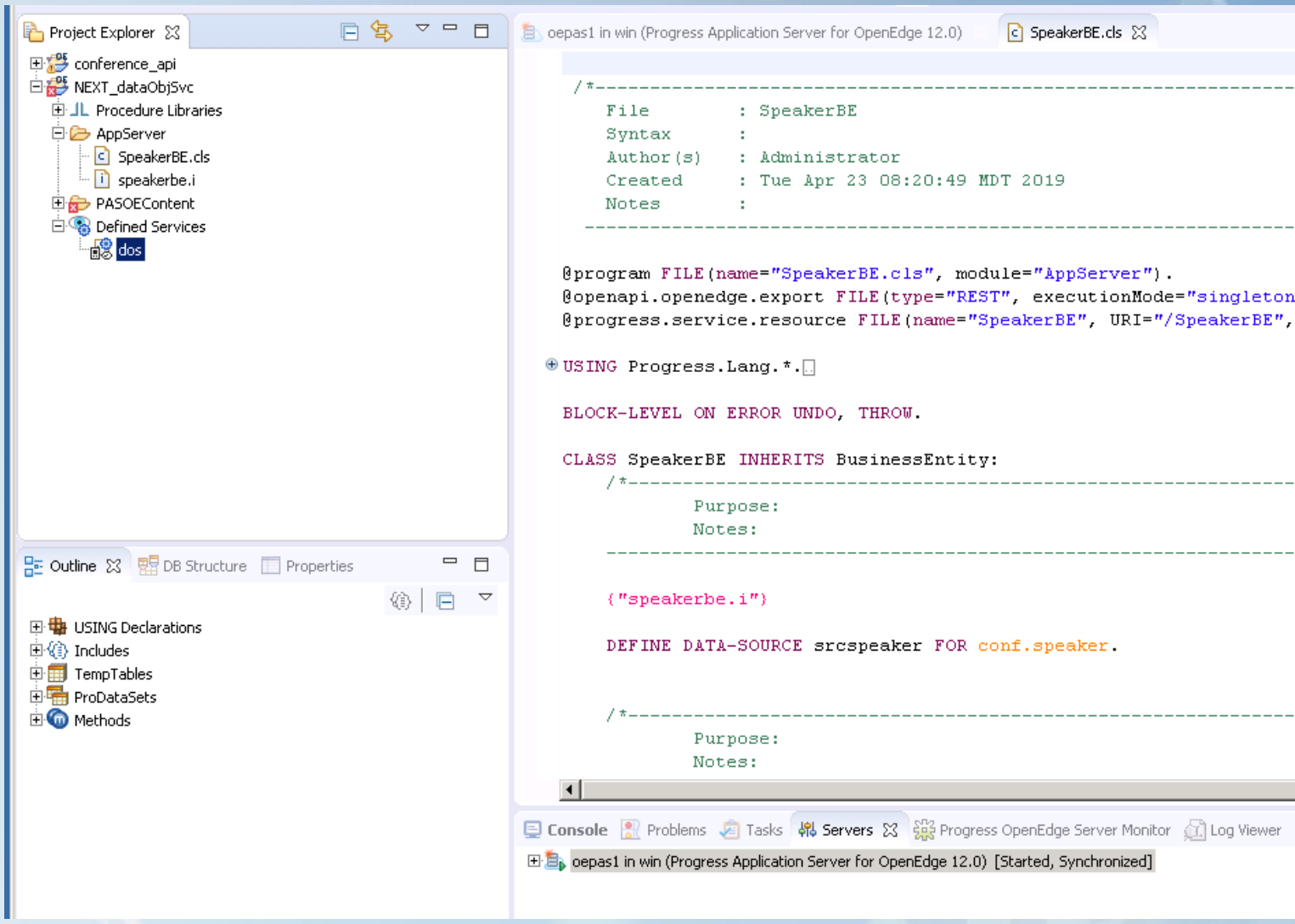
Data Object Service

- PDSOE Wizzard for creating new Business Interfaces
- Add to an ABL Service and deploy to a PASOE instance: done.
- Dynamic at run-time.



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Highly prescriptive Interface

- Builds on OpenEdge.BusinesLogic.BusinesEntity
- It is all about DataSets!

Built-in operation	Prescribed parameter list
Create	INPUT-OUTPUT { TABLE table-name | DATASET dataset-name | TABLE-HANDLE table-hdl | DATASET-HANDLE dataset-hdl}
Read	INPUT filter AS CHARACTER, OUTPUT { TABLE table-name | DATASET dataset-name | TABLE-HANDLE table-hdl | DATASET-HANDLE dataset-hdl}
Update	INPUT-OUTPUT { TABLE table-name | DATASET dataset-name | TABLE-HANDLE table-hdl | DATASET-HANDLE dataset-hdl}
Delete	INPUT-OUTPUT { TABLE table-name | DATASET dataset-name | TABLE-HANDLE table-hdl | DATASET-HANDLE dataset-hdl}
Submit	INPUT-OUTPUT {DATASET dataset-name| DATASET-HANDLE dataset-hdl}

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When to use?

- Closest to working with ABL: /pdo/ extends the Nature of the ABL ProDataSet into the JavaScript world.
- Creates and uses the JavaScript Data Object (mapping and catalog)
- Integrated with other technologies
  - KendoUI for jQuery Transport „JSDO“.
  - Supports RPC like calls with „invoke“, updates of ProDataObject changes in a single transaction with „submit“.
- Fastest way of translating CRUD operations into REST
- https://documentation.progress.com/output/pdo/Progress_Data_Objects_Guide_and_Reference.pdf

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WebHandler Services

A Web Handler is a custom ABL class that inherits the OpenEdge.Web.WebHandler class and contains methods that enable you to handle REST requests.

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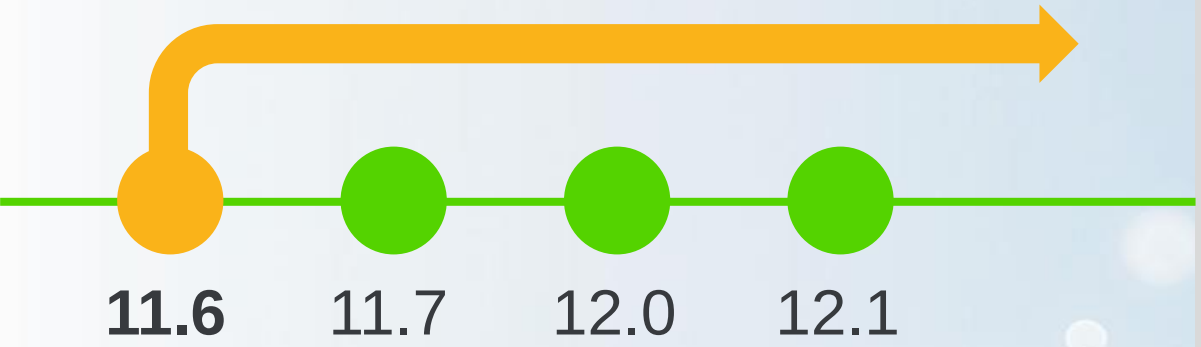
Service Interface Approach - WEB

WebHandler



- Associate OOABL WebHandler class with URI pattern
- Very flexible
- Do whatever you want in ABL code
- URL is all yours too
- Create your own or use one of the in-the-box WebHandlers
- Extend and/or replace existing behavior

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What is a web handler?

- Tasks
  - Routing: what program & function should be run
  - Parameter mapping: convert HTTP into ABL and back
- OOABL implementations
  - OpenEdge.Web.CompatibilityHandler : 'classic' WebSpeed
  - OpenEdge.Web.DefaultWebHandler : locked-out version
  - OpenEdge.Web.DataObject.DataObjectHandler : general purpose, map configuration
  - OpenEdge.Web.WebHandler : custom WebHandler
- OpenEdge.Web & OpenEdge.Net packages in $DLC/tty/OpenEdge.Web.pl & $DLC/tty/netlib/OpenEdge.Net.pl

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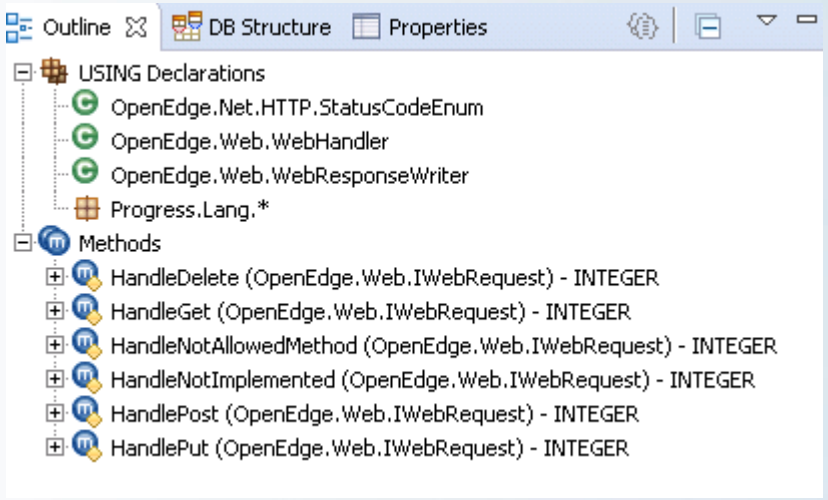
WebHandler Class




```
CLASS TalkHandler INHERITS WebHandler:

    METHOD OVERRIDE PROTECTED INTEGER HandleNotAllowedMethod( INPUT poRequest AS OpenEdge.Web.IWebRequest ):

    METHOD OVERRIDE PROTECTED INTEGER HandleNotImplemented( INPUT poRequest AS OpenEdge.Web.IWebRequest ):



    /*------------------------------------------------------------------------------
            Purpose: Default handler for the HTTP GET method. The request being
                     serviced and an optional status code is returned. A zero or
                     null value means this method will deal with all errors.
            Notes:
    ------------------------------------------------------------------------------*/
     METHOD OVERRIDE PROTECTED INTEGER HandleGet( INPUT poRequest AS OpenEdge.Web.IWebRequest ):


        DEFINE VARIABLE oResponse AS OpenEdge.Net.HTTP.IHttpResponse NO-UNDO.
        DEFINE VARIABLE oWriter   AS OpenEdge.Web.WebResponseWriter  NO-UNDO.
        DEFINE VARIABLE oBody     AS OpenEdge.Core.String            NO-UNDO.

        /* The WebResponse body is a wrapper around an entire HTTP response message.
           It contains a status code and reason; headers; cookies and a message body.

           API-level doc for this and related classes can be found at
           https://documentation.progress.com/output/oehttpclient/      */
        ASSIGN
            oResponse             = NEW OpenEdge.Web.WebResponse()
            oResponse:StatusCode = INTEGER(StatusCodeEnum:OK)
            .
        /* This body object can be a string or something else (JsonObject for instance) */
        ASSIGN
            oBody = NEW OpenEdge.Core.String(
                            'Hello Administrator'
                          + '~r~n':u   /*CRLF */
                          + 'This message was returned by HandleGet in TalkHandler.'
                          ).

        ASSIGN
            oResponse:Entity        = oBody
            /* HTTP messages require a content type */
```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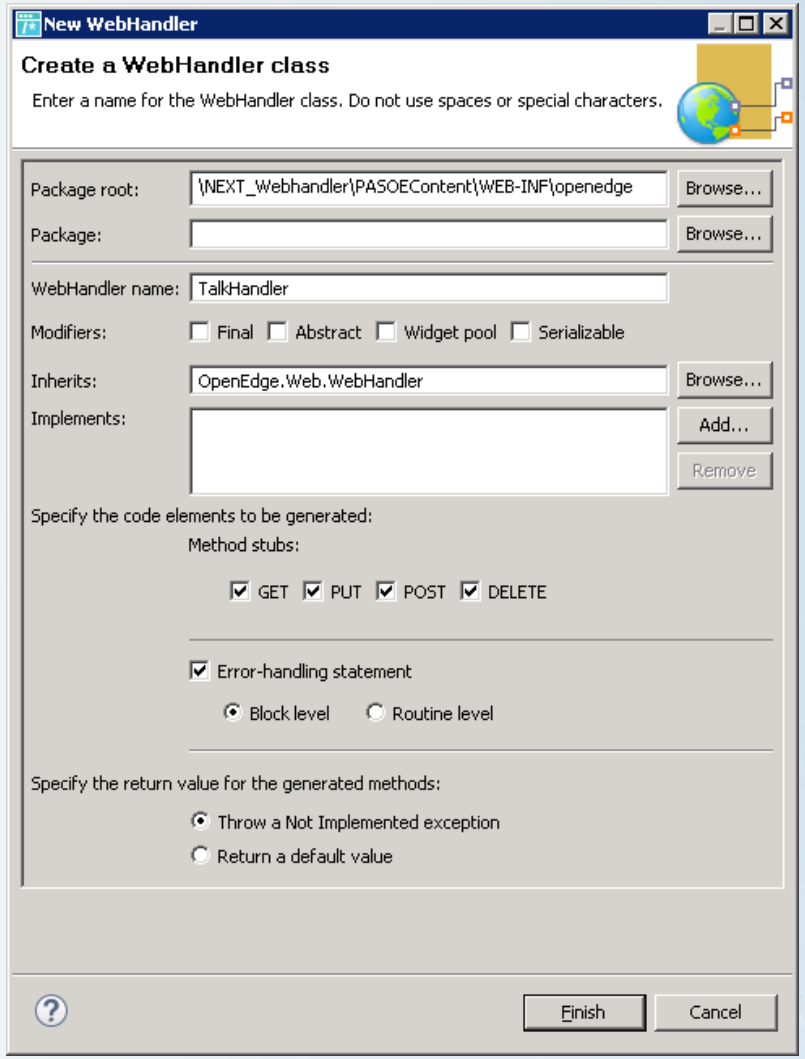
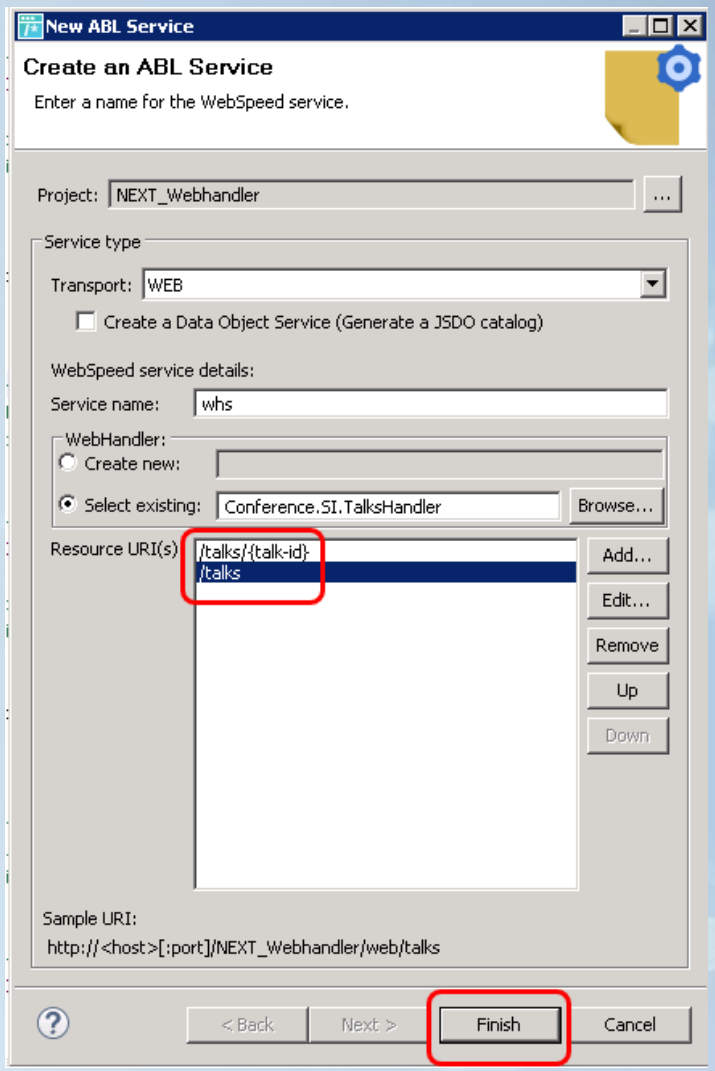
PDSOE Wizzards create Stubs





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Implement logic for each http verb

```
38  method override protected integer HandleGet( input poRequest as OpenEdge.Web.IWebRequest ):
39      define variable talkId as character no-undo.
40      define variable resp  as WebResponse no-undo.
41      define variable msgBody as JsonObject no-undo.
42      define variable record as JsonObject no-undo.
43      define variable filter as character no-undo.
44      define variable skipRecs as integer no-undo initial 0.
45      define variable topRecs as integer no-undo initial 0.
46      define variable qryCnt as integer no-undo initial 0.
47      define variable hBusinessLogic as handle no-undo.
48
49      assign resp             = new OpenEdge.Web.WebResponse()
50             msgBody          = new JsonObject()
51             resp:ContentType = 'application/json'
52             resp:Entity      = msgBody
53             .
54      //web/talks/{talk-id} | GET | n/a | n/a |  logic/talk/read_talks.p:get_single_talk
55      if right-trim(poRequest:UriTemplate, '/':u) eq '/talks/~{talk-id}' then
56      do:
57          assign talkId = poRequest:GetPathParameter('talk-id')
58                 record = new JsonObject()
59                 .
60          run logic/talk/read_talks.p single-run set hBusinessLogic.
61          run get_single_talk in hBusinessLogic (talkId, output table ttTalk).
62
63          buffer ttTalk:write-json('JsonObject', record, true).
64
65          msgBody:Add('data',  record).
66          msgBody:Add('count', 1).
67      end.
```

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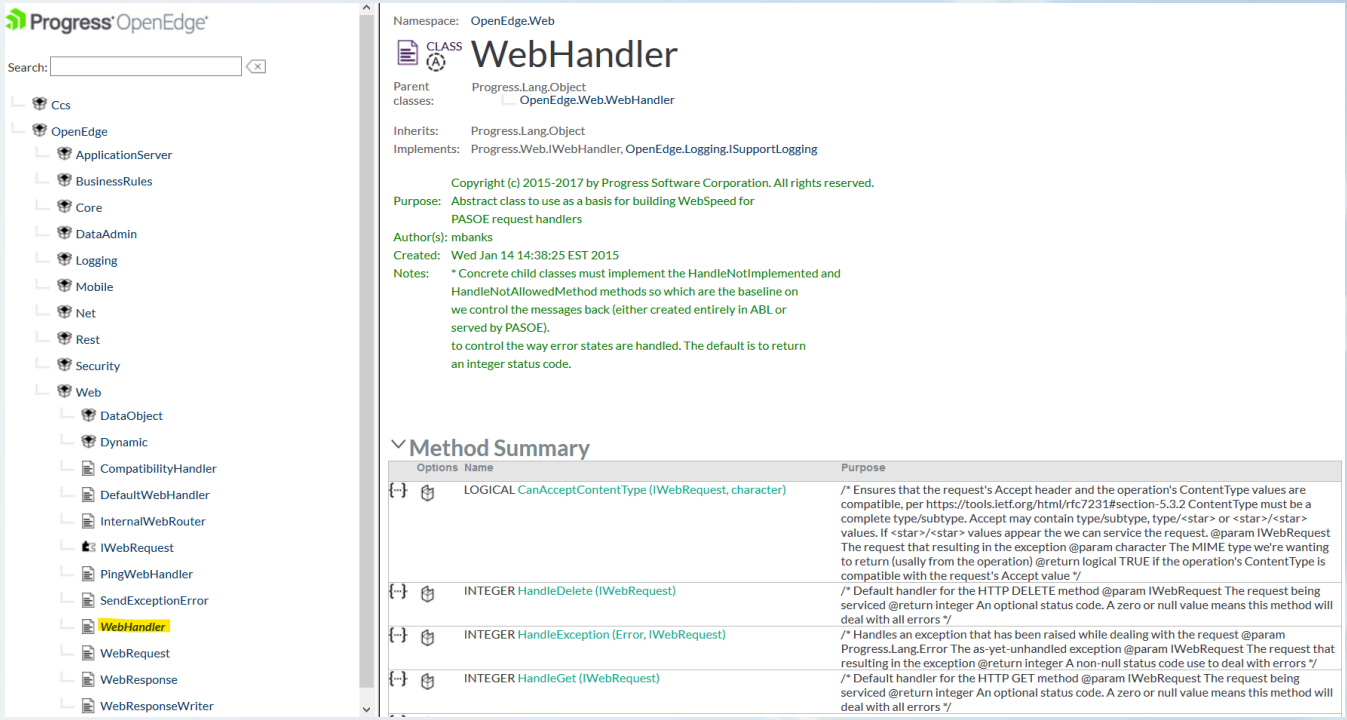
Working with the OpenEdge Web Framework

- Introduction with example code: https://docs.progress.com/bundle/service-developer-guide/page/Use-a-Web-Handler.html
- https://github.com/PeterJudge-PSC/http_samples/tree/master/web_handler
- https://documentation.progress.com/output/oehttpclient/oe120/OpenEdge.Web.WebHandler.html



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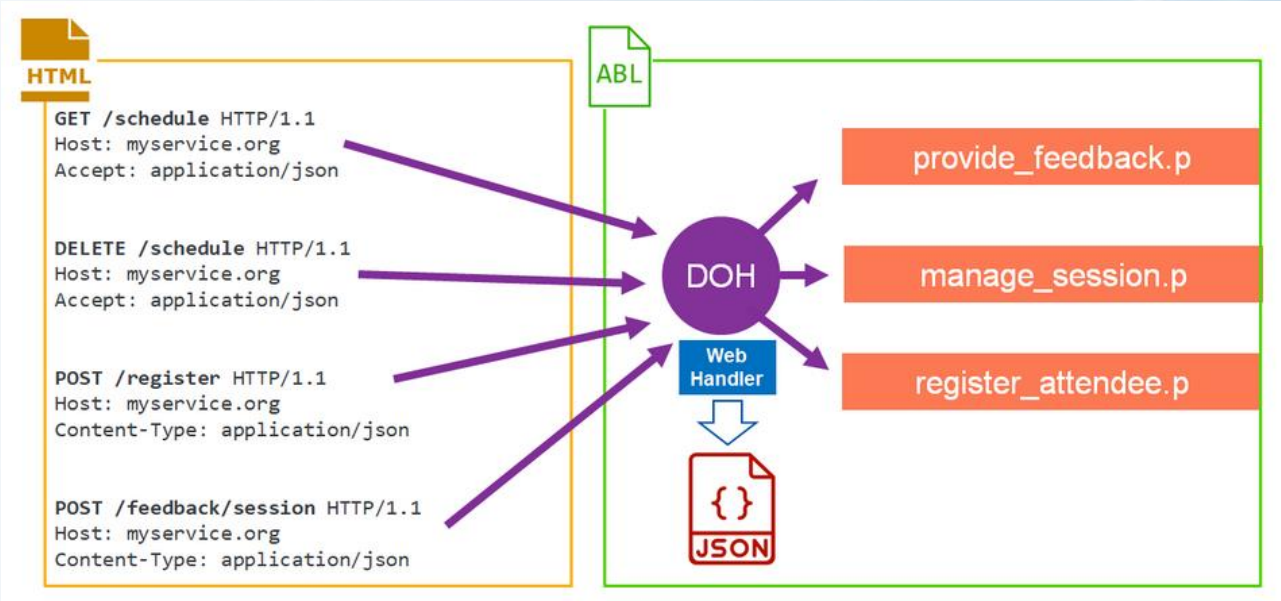
Data Object Handler

Data Object Handler

- A provided, dynamic WebHandler OpenEdge.Web.DataObject.DataObjectHandler
- Used under the hoods for the Data Object Services
- Just describe the Service, no coding required.




```
"services": {
  "conf": {                          ← Defines the REST Service this section relates to
    "version": "1.0.0",
    "operations": {
      "/talks": {                    ← Defines the resource pattern this section relates to
        "GET": {                     ← Defines the REST verb this section relates to
          "contentType": "application/vnd.conf.talks+json",   ← Response content type
          "statusCode": 200,                                  ← Response status code
          "entity": {
            "type": "procedure",       ← Specifies type of business logic to map to
            "name": "logic/talk/read_talks.p",  ← Name of procedure to map to
            "function": "get_filtered_talks",   ← Specific ABL routine to map to
            "args": [
              {
                "ablName": "pFilter",                  ← ABL parameter name
                "ablType": "CHARACTER",                ← ABL parameter data type
                "ioMode": "INPUT",                     ← ABL parameter mode
                "msgElem": {"type": "QUERY","name": "filter"}← Where in the request to
                                                          map this param from (query
                                                          string parameter called
                                                          'filter')
              },
              {
                "ablName": "pSkipRecs",
                "ablType": "INTEGER",
                "ioMode": "INPUT",
                "msgElem": {"type": "QUERY","name": "skip"}
              },
              {
                "ablName": "pTopRecs",
                "ablType": "INTEGER",
                "ioMode": "INPUT",
                "msgElem": {"type": "QUERY","name": "top"}
              },
              {
                "ablName": "ttTalk",
                "ablType": "TABLE",
                "ioMode": "OUTPUT",                    ← For OUTPUT mode parameters…
                "msgElem": {"type": "FIELD","name": "data"}← msgElem references where
                                                          in the response the param
                                                          value should be put (a JSON
                                                          element called 'data')
              },
```

White Paper: https://docs.progress.com/bundle/service-developer-guide/page/Use-a-Data-Object-Handler.html

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Configure the Map file

- Specify any required HTTP statusCode and statusReason for the response
- Encode the response into a variety of content types including: json, xml, text, binary and multi-part
- Read/write most parts of the HTTP requests: path, query, queryMap, header, headerSet, field, cookie, statusCode, statusReason, body, request, httpMethod, constants
- Supports input-output and return mode parameters as well as input and output
- In addition to GET, PUT, POST and DELETE also support the HTTP verbs: HEAD, OPTIONS, TRACE and PATCH
- Provides an extensible Event Handler mechanism to extend the out-of-the-box DataObjectHandler's capabilities

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In Summary

REST Options in OpenEdge 12.2

- Data Object Service (PDO) with JSDO
- Custom/DIY WebHandler
- Data Object Handler, manual map configuration

- OData view of OpenEdge DB (using Hybrid Data Pipeline)
- OData view of OpenEdge REST API (using HDP + ‘Autonomous Rest Connector’)

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Which handler is used?

Client

```
http://localhost:8810/SportsApp/web/PayrollSvc/catalog/          1

http://localhost:8810/SportsApp/web/PayrollSvc/data/Employee     2

http://localhost:8810/SportsApp/web/PayrollSvc/ui                default
```

Config

```
[mediaresource.SportsApp.WEB]
    defaultHandler = OpenEdge.Web.DefaultWebHandler
    handler1       = Sports.SchemaHandler        : /{resources}/catalog
    handler2       = Sports.DataHandler          : /{resources}/data/{service}
    handler3       = Sports.DataHandler          : /{resources}/data/
    handler4       = App.DocumentHandler         : /forms/{form-name}
    handler5       = Sports.SportsHandler        : /CustomerSvc/catalog
```


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Which handler is used?

handler*N*=ooabl.type.name : <relative-uri>

- <relative-uri> 1* ["/" [token|text]]
  - Relative to **/web** the transport path
    - MUST have leading /
    - Either Text Customers
    - Or Tokens {CustomerName}or{pathparam: regex}
- Matched in (numeric) order and then by best match
  - Handlers may be reused for differing paths
- Each webapp has a default for no-match-found
  - In-the-box uses OpenEdge.Web.DefaultWebHandler or OpenEdge.Web .CompatibilityHandler

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OpenEdge 11.7 bis 12.1 openedge.properties

```
# Transport properties for the WEB protocol
[oepas1.NEXT_Webhandler.WEB]
   handler1=TalksWebhandler: /talks/{talk-id}
   handler2=TalksWebhandler: /talks
   handler3=OpenEdge.Web.DataObject.DataObjectHandler: /conf/talks/{talk-id}/schedule
   handler4=OpenEdge.Web.DataObject.DataObjectHandler: /conf/talks/{talk-id}/{stream-id}
   handler5=OpenEdge.Web.DataObject.DataObjectHandler: /conf/talks/{talk-id}
   handler6=OpenEdge.Web.DataObject.DataObjectHandler: /conf/talks/streams
   handler7=OpenEdge.Web.DataObject.DataObjectHandler: /conf/talks
   handler8=OpenEdge.Web.DataObject.DataObjectHandler: /services/
   adapterEnabled=1
   srvrAppMode=development
   wsRoot=/NEXT_Webhandler/static/webspeed
   srvrDebug=0
   defaultHandler=OpenEdge.Web.CompatibilityHandler
   defaultCookieDomain=
   defaultCookiePath=
```

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WebHandler Information File Versions

```
{
    "version": "1.0",
    "serviceName": "SportsSvc",
    "handlers": [{
        "className": "SportsSvc",
        "URIs": [
            "\/webHandlers",
            "\/some-data",
            "\/customers\/{custnum}\/orders\/{ordernum}",
            "\/customers\/{custnum}\/orders",
            "\/customers\/{custnum}",
            "\/customers"
        ]
    }]
}
```

```
{
  "version": "2.0",
  "serviceName": "",
  "handlers": [
    {
      "uri": "/WebHandlers",
      "class": "WebHandlersHandler",
      "enabled": true
    },
    {
      "uri": "/customers/{custnum}/orders/{ordernum}",
      "class": "CustomerService",
      "enabled": true
    }
  ]
}
```

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OpenEdge 12.2 WebHandler

- New files to declare WebHandlers in a WebHanlder Information File of contents type JSON.
  - ROOT.handler and <WebAppName>.handler
  - Details: https://docs.progress.com/bundle/pas-for-openedge-admin/page/Deploy-web-handler-services.html
- Backwards compatible with OE 11.7 approach (Handlers listed in openedge.properties)
  - Migration Tools extract existing definitions into ROOT.handler
- Two Versions defined.
- Refresh without restarting PASOE
  - tcman.{sh|bat} jmx refreshWeb -appname <application-name> -webappname <webapp-name> [-v]

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Documentation and samples

Develop OpenEdge Services:

https://docs.progress.com/bundle/service-developer-guide/page/Develop-services.html

OpenEdge .Net and .Web classes in ABL Doc Format:

https://documentation.progress.com/output/oehttpclient/oe117/
https://documentation.progress.com/output/oehttpclient/oe120/index.html

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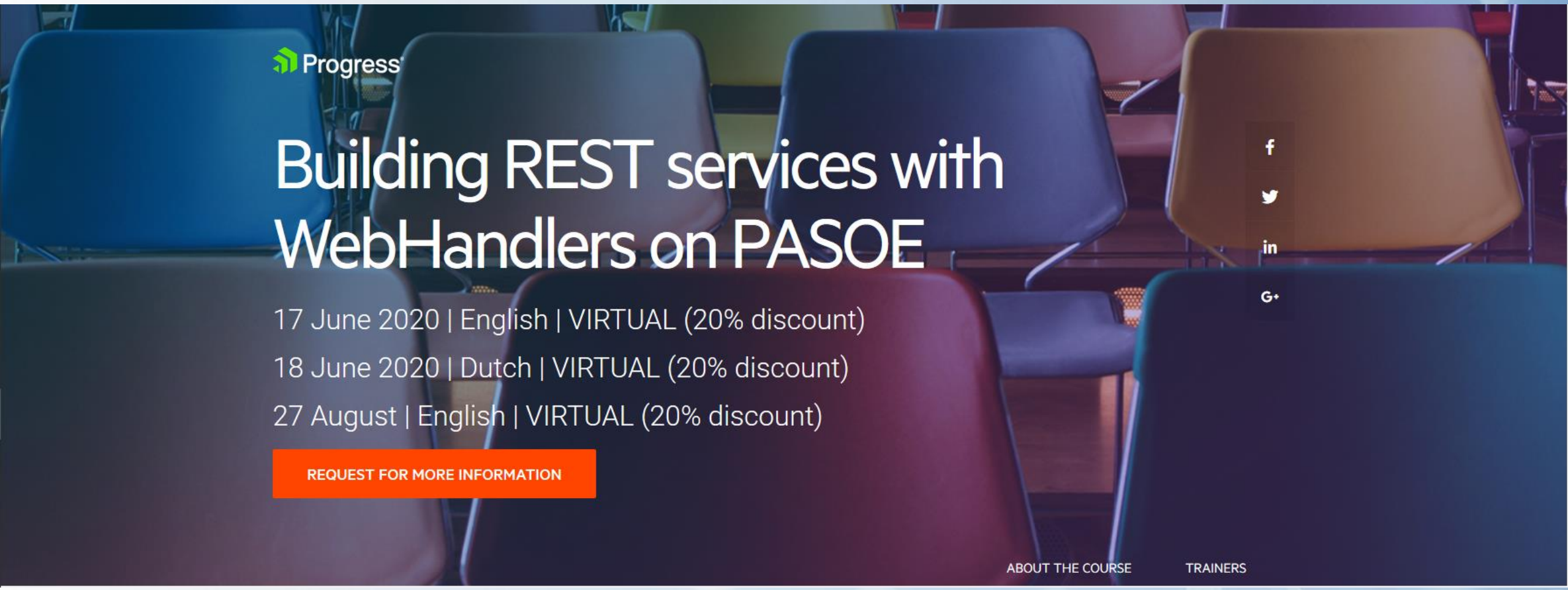
Virtual Trainings available



https://www.progress.com/services/education/openedge/building-rest-services-with-webhandlers-on-pasoe

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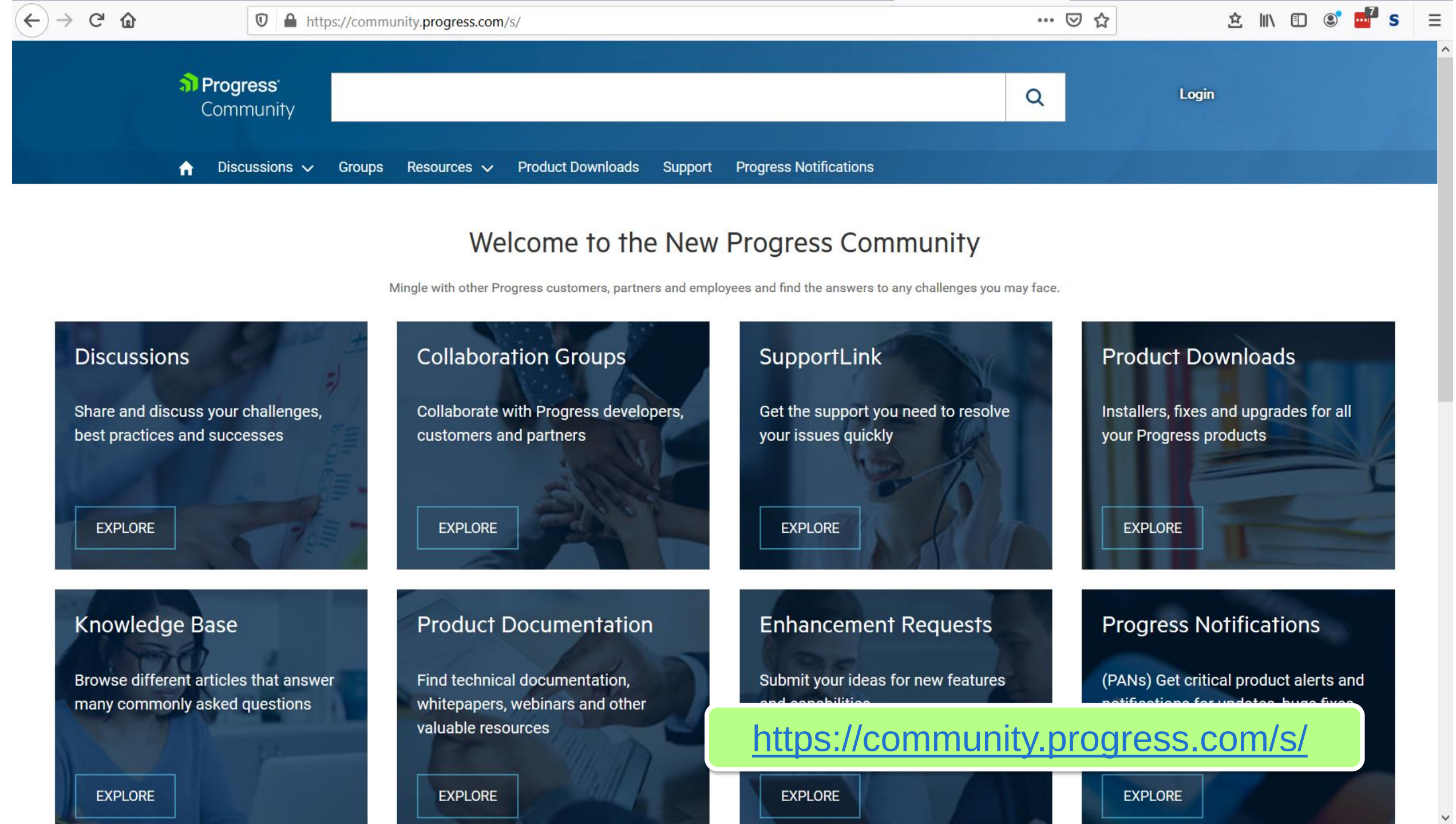
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Progress Community
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Groups
Resources
Product Downloads
Support
Progress Notifications
Welcome to the New Progress Community
Mingle with other Progress customers, partners and employees and find the answers to any challenges you may face.
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Share and discuss your challenges, best practices and successes
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EXPLORE
SupportLink
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EXPLORE
Product Downloads
Installers, fixes and upgrades for all your Progress products
EXPLORE
Knowledge Base
Browse different articles that answer many commonly asked questions
EXPLORE
Product Documentation
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EXPLORE
Enhancement Requests
Submit your ideas for new features
EXPLORE
Progress Notifications
(PANs) Get critical product alerts and
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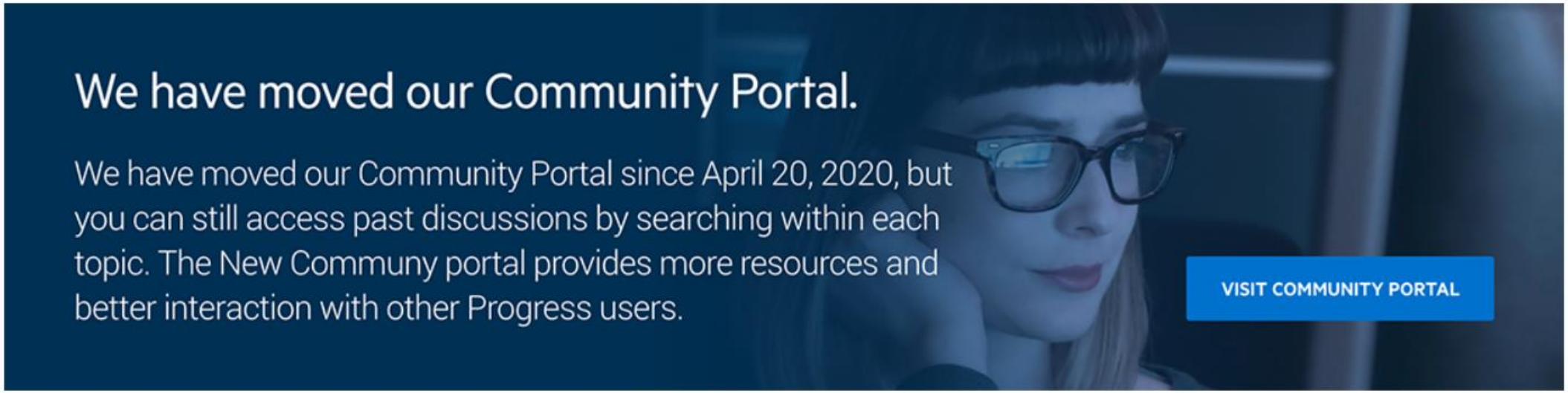
Progress Community | Archive of former Progress Community Discussions



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https://community-archive.progress.com/

COGNITIVE SERVICES

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OpenEdge BPM (214)

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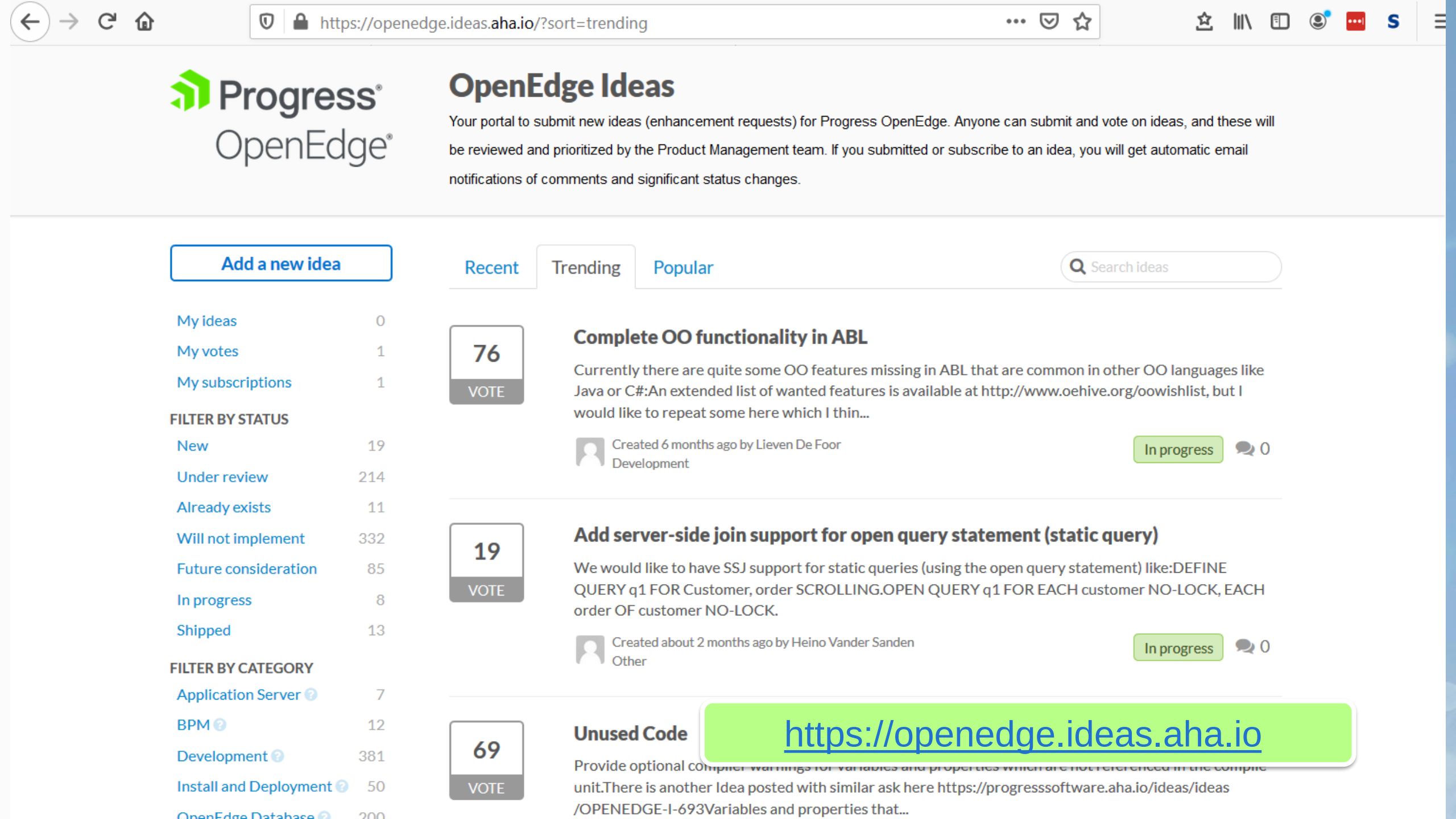
OpenEdge Development (6145)

PROGRESS USER GROUPS

Progress User Groups (164)

PUG Germany - Technical (6)

PUG Germany - General (49)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OpenEdge Ideas
Your portal to submit new ideas (enhancement requests) for Progress OpenEdge. Anyone can submit and vote on ideas, and these will be reviewed and prioritized by the Product Management team. If you submitted or subscribe to an idea, you will get automatic email notifications of comments and significant status changes.
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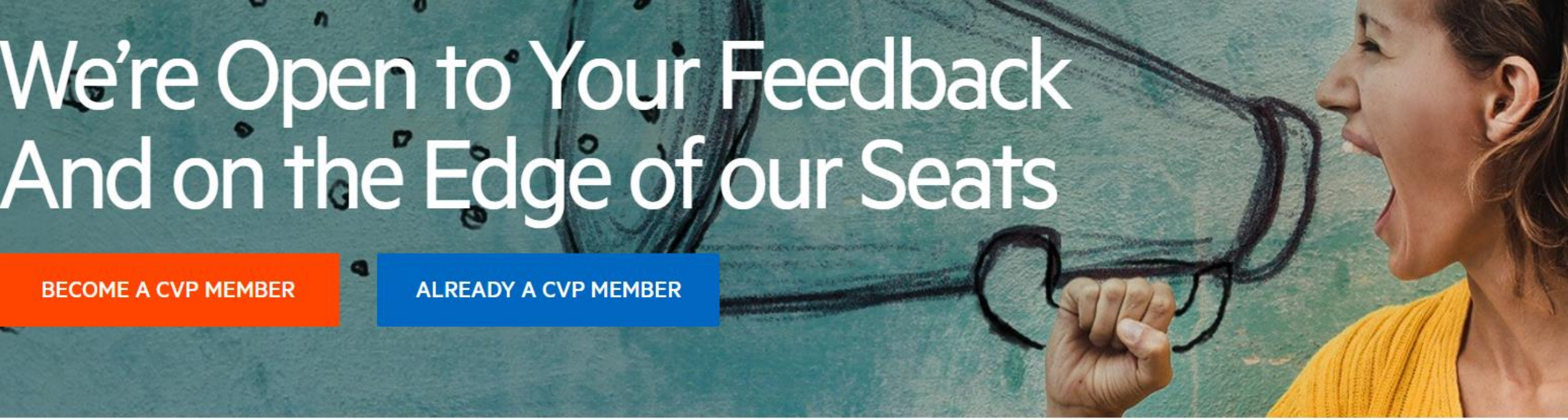
My votes 1
My subscriptions 1
FILTER BY STATUS
New 19
Under review 214
Already exists 11
Will not implement 332
Future consideration 85
In progress 8
Shipped 13
FILTER BY CATEGORY
Application Server 7
BPM 12
Development 381
Install and Deployment 50
Recent
Trending
Popular
Search ideas
76
VOTE
Complete OO functionality in ABL
Currently there are quite some OO features missing in ABL that are common in other OO languages like Java or C#:An extended list of wanted features is available at http://www.oehive.org/oowishlist, but I would like to repeat some here which I thin...
Created 6 months ago by Lieven De Foor
Development
In progress
0
19
VOTE
Add server-side join support for open query statement (static query)
We would like to have SSJ support for static queries (using the open query statement) like:DEFINE QUERY q1 FOR Customer, order SCROLLING.OPEN QUERY q1 FOR EACH customer NO-LOCK, EACH order OF customer NO-LOCK.
Created about 2 months ago by Heino Vander Sanden
Other
In progress
0
69
VOTE
Unused Code
unit.There is another Idea posted with similar ask here https://progresssoftware.aha.io/ideas/ideas /OPENEDGE-I-693Variables and properties that...
https://openedge.ideas.aha.io



Delivering software that meets your high expectations is our number one priority.

Nun zu finden unter Community.Progress.com -> Groups, rechte Seite, Liste der CVP Gruppen.

OpenEdge CVP https://community.progress.com/s/group/0F94Q000000HakDSAS/openedge-cvp

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