OpenEdge 12

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22 juni, 2019
OpenEdge 12: Powering Tomorrow’s Evolution Today

Introducing the highest performing, most agile, secure and scalable version of the application development platform that keeps your business thriving.

TRY 12.0 NOW
Topics

- OpenEdge (OE) 12
  - What’s gone?
  - Features & Benefits

- A closer look:
  - ABL enhancements
  - Multi-Threaded DB
  - Server-Side Joins

- Q&A
What’s gone in OE12.0?
Products / features removed in OE12.0

- Classic AppServer
- WebSpeed
- Query Results, Report Builder, WebSpeed workshop (and some other ancient dev. products)
- Progress Dynamics
- Solaris platform (will be back in OE12.1)
- HP-UX 11i v3
- Windows Server 2008R2
The Seven Evolution Imperatives

Make it Extensible, Scalable, Performant, Available, Usable and Secure
(and do it quickly)

- **Extensibility and Integration**: The app’s ability to extend information and capabilities across many connections, devices, and data sources.
- **Scalability**: The app’s ability to grow and scale as the number of users and connections increases without affecting performance.
- **Performance**: The app’s measurement of response time to act on a user’s input or finish an amount of work, under normal and peak loads.
- **Availability**: The app’s measurement against a goal of continuous uptime and avoidance of data loss to a disaster or breach.
- **Security**: The organization’s ability to protect the system from unauthorized users while staying in compliance with regulatory mandates.
- **Engaging Usability**: The presentation layer’s ability to provide intuitive and exciting experiences.
- **Agility**: The organization’s agile culture and ability to develop and deploy new application functionality quickly and productively.
Features and Benefits

- Performance and Scale
- Agility
- Continuous Ops
- Security

OpenEdge 12
Performance and Scale
Key Features to Support

• Multi-threaded Database, server-side multi-table JOINs, and locking delay improvements provide dramatic improvement to database throughput
• More efficient replication process serves to further improve performance
• Faster OOABL class instantiation
• SQL Query Plan statistics automatically updated for most efficient SQL query resolution
• Container deployment for PAS for OpenEdge allows fast and efficient creation of repeatable environments
Multi-Threaded DB Server
The OE DB Storage Engine is indeed thread safe

- The Storage Engine provides threaded access to data for

- PASOE accesses the database via threads
  - Uses a thread pooling technique

- OE SQL accesses the database via threads
  - Employs one thread per connection

- Certain DB utilities utilize threads for data access

- ABL Database Server is not multi-threaded
  - Each server process handles data requests for multiple connections one at a time.
Multi-threaded DB Server – Why?

- **Improved performance**
  - Processing requests in parallel improves remote client performance
  - Enhanced lock wait processing
  - Connection processing separated from OLTP
  - Decreases context switching costs

- **Continuous availability**
  - Kill of remote client can’t crash a database
    - Remote client process never executes in a database critical section

- **Enabler for Server Side Join project**
  - Served clients don’t need to wait another’s completion
Requests of Server – Classic Model

Unused CPU power on server machine

Network Communication Service

Remote Client — Remote Client — Remote Client — Up to Ma clients

Login Requests

Login Request — Service Request

Message — Message — Message — Message

Create & control messages

Create & control messages

Service Request — Service Request — Service Request — Service Request

Server Process

Listen for connection, Message creation & Process requests

Requests processed 1 at a time

Data

MSG Buffers & Socket Array
Requests of Server – Threaded Model

Server Process (Thread 0)
Listen for connection, Message creation & Thread control

Broker started with
-threadedServer 1 –Ma 4

Network Communication Service

Request processed concurrently

Service Request

Remote Client
Remote Client
Remote Client
Up to –Ma clients

Login Requests

No change to remote client

Overhead threads

MSG Buffers & Socket Array

Improved throughput

Data
Server-Side Multi-Table Joins
Server query resolution model

FOR EACH Customer, EACH Order of Customer WHERE ...

- Client now only asks for the next set of data
  - In the past, Client tells Server what to do
- Reduces # records sent
- Reduces TCP communication requests
SSJ OE 12.0 Functionality

- In the first release of the Server Side Join feature
  - Support of “for each” statements for joins up to 10 tables with NO-LOCK
    - no open query or dynamic query operations

- Requires multi-threaded database server
  - -ssj on by default if –threadedServer 1
    - (19329) Database server side join support (-ssj): Enabled
  - -ssj setting lasts for the life of the connection
  - -ssj can be changed online (currently primary broker only)

- Broker Specific Configurations
  - -threadedServer 1 and -ssj 1
Realizing SSJ

- No changes to the application code
- Client logging
  - logentrytypes QryInfo, logginglevel 3
  - Monitor the change in
    - DB Reads:
    - Records from server:
  - Type: FOR Statement, Server-side join
Continuous Operations

Key Features to Support

• Replication AI file streaming dramatically reduces the possibility of data loss during a failure

• PAS for OpenEdge HealthScanner helps identify performance anomalies and automates recycling agent processes to reduce risk of failure and increase application uptime

• Database maintenance capabilities via SQL without a database restart keeps the system operational

• Instrumentation-free performance profiling aids in root cause analysis on running production environments
PASOE HealthScanner
PASOE HealthScanner

- New in 12.0
- Primary use case
- http://hostname:port/health
  - Default port 8899
- Returns an HTTP 200 if instance is WELL
- Returns an HTTP 500 if instance is UNWELL but still responding
PASOE HealthScanner

- Secondary features
- Heat Map
- Summary JSON
- Details JSON
- ~/bin/oehealth (-D)
  - Script of summary (details)
PASOE HealthScanner

- Enable feature on PASOE instance:
  - `tcman feature HealthCheck=on`
- Turn on Data Collection
  - `tcman config psc.as.health.enabled=true`
- `Tcman env` command now shows ‘manager health port: 8899’ entry
- Port number can be changed
  - `tcman config psc.as.healthcheck.port=10103`
Agility

Key Features to Support

• Introductory source code analysis, and ABL performance profiler improvements reduce errors in coding and speed efficiency.

• Preview of cloud-based next-gen DevOps platform improves developer productivity and efficiency by allowing continuous integration and deployment (CI/CD) -> OE12.x

• Currency upgrades to OpenEdge supporting technologies, along with a new Sports 2020 sample database improve the developer experience
Security

Key Features to Support

• Update to latest version of Spring Security, and OpenSSL strengthens security in PAS for OpenEdge and fortifies secure communications

• High priority issues identified by internal security scans (Veracode, AppScan and OWASP) are addressed for improved infrastructure security

• Older compromised encryption ciphers removed from the product, with a Migration Guide providing best practices for moving to more secure ciphers

• More secure file permission on various utilities helps ensure only authorized staff have access
Extensibility and Integration

Key Features to Support

• Updated third-party libraries used by SOAP stack in PASOE will improve API compatibility

• Refactoring tools make it easy to find references and adjust i.e. class names -> OE12.x

• Improved SQL Server DataServer support and functionality produces improved integration performance with SQL databases.
ABL enhancements
ABL enhancements

▪ New memory stream classes
  • Makes it easier to work with MEMPTR’s:
    – Progress.IO.MemoryOutputStream
    – Progress.IO.MemoryInputStream

▪ Indeterminate array resizing
  • Use EXTENT statement to resize it

▪ STOP conditions behave more like errors

▪ Empty FIELDS list now actually returns no fields
Docker & OpenEdge

- Baseline PASOE Docker image available on ESD:
  - OE11.7.4
  - OE12.0

- For now only Linux is supported (RHEL):
  - Running on Ubuntu 18.04 seems to work fine as well

- Only PASOE supported for now

- RDBMS for development purposes is now being researched
What else?
Customer Validation Program

**Roadmap Surveys**
We receive hundreds of enhancement requests. Your responses to our short roadmap surveys influence our product direction and help prioritize deliverables.

**Virtual Open Houses**
Geek out at our live interactive webinars that will share new development and architectural runways.

**Usability Surveys**
Show us how you actually use the product, so that we can improve your experience with it.

**Sprint Reviews**
We will showcase our development progress to make sure we’re on the right track.

**Pre-release Software**
Your chance to preview, test and share your feedback...before we ship it.
Learn by OpenEdge role

Developer

Database Administrator

System Administrator

DevOps Engineer