



Which Edition of Appeon 2.8 is Right for You?

An Appeon Whitepaper

Appeon® for PowerBuilder®

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1 Overall Product Features by Edition

Appeon 2.8 is offered in 3 editions (Developer, Advanced, and Enterprise) to suit your budget, your stage in the development/migration cycle, and the level of PowerBuilder client/server functionality that you require on the Web. The Product Feature Matrix below will help you decide which edition(s) are right for you to purchase.

1.1 Product feature matrix

	Developer Edition	Advanced Edition	Enterprise Edition
Product Capabilities			
Convert Existing PB Apps	✓	✓	✓
Build New Web Apps	✓	✓	✓
Maintain in PowerBuilder IDE	✓	✓	✓
Skills Required	PowerBuilder	PowerBuilder	PowerBuilder
PowerBuilder Application			
PowerBuilder Feature Support Level	Extended	Standard	Extended
PFC Support	✓	✓	✓
Recommended DataWindows per Window	<25	<10	<25
Client-side Printing	✓		✓
PDF Printing	✓	✓	✓
Hot Keys, Shortcut Keys, Accelerator Keys	✓		✓
Integration			
Client-side Integration	✓	✓	✓
J2EE Integration	✓	✓	✓
CORBA Integration	✓	✓	✓
Web Services	✓	✓	✓
Performance			

3-5X Performance Booster (Appeon Xcelerator)	✓		✓
10X Data/File Compression	✓	✓	✓
Narrowband Friendly	✓	✓	✓
Server Clustering		✓	✓
Database Connection Pooling	✓	✓	✓
Security			
HTTPS/SSL	✓	✓	✓
User Authentication	✓	✓	✓
LDAP Support	✓	✓	✓
Firewall Friendly	✓	✓	✓
Licensing			
Pricing	\$850/developer seat	\$12,500/server CPU	\$18,500/server CPU
Bundled J2EE Application Server	EAServer 5.0 Developer Edition	EAServer 5.0 Advanced Edition	EAServer 5.0 Advanced Edition
Licensed Usage	Development Use	Production Use	Production Use

1.2 Product features explained

1.2.1 Product capabilities

Appeon transforms PowerBuilder into the most productive Web development tool for the J2EE platform. It is capable of migrating existing PowerBuilder applications to the Web with unprecedented speed, where typically 80-95% of existing PowerBuilder code and objects of the application are automatically converted. It is also capable of building new rich Web applications with the unbeatable 4GL productivity of PowerBuilder that is at least 4 times faster than ASP.NET or typical JSP authoring tools. The only skill required is your existing PowerBuilder skills that you have mastered over the years. All future Web application maintenance is carried out in the familiar PowerBuilder IDE and again using only the PowerBuilder skills that you have already mastered.

1.2.2 PowerBuilder application

Appeon provides robust support for both PowerBuilder non-visual and visual features, including the PFC framework. No other product in the world supports as many PowerBuilder features as Appeon and faithfully replicates the rich PowerBuilder UI in standard HTML and JavaScript. For example, Appeon supports MDI within a single browser window, all Window types, 22 visual controls, all DataWindow presentation styles except RichText and OLE, n-tier NVOs, and 85% of all features/services in the PFC, just to name a few.

Appeon 2.8 offers 2 Web deployment options depending on how much client/server functionality is needed: Pure-JavaScript and Appeon Xcelerator deployment.

1. **Pure-JavaScript** deployment supports many powerful PowerBuilder features, which is more than enough for many Web migration projects and excellent for new Web development with Appeon. These supported features are summarized in [section 2.1 – Standard feature-set](#).
2. **Appeon Xcelerator** deployment extends the supported features to encompass client/server-centric features and boost run-time performance by at least 3-5 times, making it ideal for larger and more complex Web migrations. The additional features supported by the Appeon Xcelerator are summarized in [section 2.2 – Extended feature-set](#).

Regardless of which edition you choose, all editions of Appeon offer the Pure-JavaScript deployment option, which is excellent for your organization’s future new Web development projects.

1.2.3 Integration

Appeon provides extremely flexible integration options both at the client computer and server such that you can integrate nearly any application imaginable.

- **Client-side integration** – Appeon Web applications can invoke non-visual OLE objects, Windows APIs and DLLs, and other executable programs that are installed at the Windows-based client computer. This support enables Appeon Web applications to integrate with essentially any application installed at the client computer and to work with any peripherals that are connected to the client computer.
- **J2EE integration** – Appeon Web applications are based on J2EE technology and deploy to a J2EE application server. This architecture enables Appeon Web applications to natively integrate with all J2EE Web and distributed client/server applications.
- **CORBA integration** – Appeon’s server architecture supports CORBA standard and IIOP protocol. This support enables Appeon Web applications to seamlessly integrate with server components written in a number of languages, including C/C++, Java, and PowerBuilder.
- **Web services** – Web services is supported in conjunction with PowerBuilder 9 or above. This support enables Appeon Web applications, at the server-side, to integrate with any Web services-enabled application, including .NET Web and client/server applications.

Appeon uniquely empowers you to marry Microsoft technologies and J2EE in one happy union. Unlike other solutions, you are not forced to decide between Microsoft technologies or Java, and you do not need to Web service-enable your system to take advantage of extensive integration options.

For more information about Appeon architecture and integration, please read the Appeon Whitepaper, *Understanding the Architecture of Appeon 2.8*, which can be downloaded from the Appeon Website: <http://www.appeon.net>.

1.2.4 Performance

Even though Appeon Web applications offer extremely rich UI and very powerful PowerBuilder functionality, there are a number of built-in features to ensure it performs and scales well, especially when deployed outside of a LAN environment.

- **Run-time performance** – The run-time performance of your Web application can be boosted by at least 3-5 times via the Appeon Xcelerator deployment option, which typically makes Appeon Web applications perform nearly as fast as PowerBuilder client/server.
- **Bandwidth & connectivity** – All communication between the browser and server utilizes the HTTP standard (connectionless protocol) and 10X data compression is applied automatically.
- **Scalability** – Appeon middle-tier offers the superior scalability of the J2EE architecture. It can be clustered/load-balanced to support any number of users. In addition, database access utilizes connection pooling technology to minimize the load on your database by as much as 10 times.

Unlike “quick n’ dirty” migration solutions, Appeon’s architecture empowers your system to scale in all sense of the word. It can deploy the most demanding applications, handle large number of users, and work across geographies

without restrictions on network connection type and quality. Apeon is designed to serve your organization as it grows not only in headcount but also globally.

For more information about Apeon architecture and performance, please read the Apeon Whitepaper, *Understanding the Architecture of Apeon 2.8*, which can be downloaded from the Apeon Website: <http://www.appeon.net>.

1.2.5 Security

Apeon supports the strict Web security standards and practices. Built-in user authentication ensures that all users of your Web application have authorized access. This can be configured to work with your existing or a new LDAP server. All data transmitted between the Web client and server can be encrypted using HTTPS/SSL. Since Apeon Web applications can be deployed using just HTML and JavaScript over HTTP port 80, there is no need to relax your firewall security measures at all.

For more information about Apeon architecture and security, please read the Apeon Whitepaper, *Understanding the Architecture of Apeon 2.8*, which can be downloaded from the Apeon Website: <http://www.appeon.net>.

1.2.6 Licensing

Apeon does not require you to spend a lot of money before you can get started reaping the benefits of automated Web conversion and superior PowerBuilder 4GL productivity. With as little as \$850 per developer, you can start to convert your existing PowerBuilder client/server application to the Web or build new rich Web applications faster than anything else. Every edition of Apeon is bundled with the Sybase EAServer 5.0 J2EE application server, which is included in the Apeon price, so you have a fully functional system without making any additional purchases. Once your project has advanced to the stage where you would need to provide multiple users access to the deployed Web application, whether it be for testing or production usage, you then will have the choice to purchase the edition of Apeon (Advanced or Enterprise) that is the best fit for your PowerBuilder applications and needs.

2 PowerBuilder Supported Features

2.1 Standard feature-set

All editions of Appeon offer support for many powerful PowerBuilder features that have never before been seen supported on the Web with standard HTML and JavaScript technology. These features are excellent for building new Web applications with the rich UI and unbeatable productivity of PowerBuilder. They are also sufficient for most Web migration projects.

The “Standard” supported features have been highlighted and summarized below. For a detailed list of Appeon supported features, please read the Appeon 2.8 Advanced Edition product documentation *Appeon Supported Features Guide* and *Using the PowerBuilder Foundation Class Library with Appeon*, which can be downloaded from the Appeon Website: <http://www.appeon.net>.

2.1.1 PFC

Approximately 85% of all PFC features are supported:

- PFC Naming Conventions & Standards
- PFC Corporate Layer
- PFC Extension Layer
- PFC Windows
- PFC NVO Services
- PFC Standard Visual User Objects
- PFC DataWindow Services & Features
- PFC Controls
- PFC Events
- PFC Functions
- PFC Structures

2.1.2 DataWindow

- DataWindow Presentation Styles: Composite, Crosstab, Freeform, Group, Graph, Grid, Nested, Label, N-Up, Tabular
- DataWindow Bands: Header, Detail, Group (Image & PDF formats only), Footer & Summary
- DataWindow Buffers: Primary, Filter, Delete, every item status
- DataWindow Data Sources: SQL, Query, Stored Procedure, External
- DataWindow Column Style Types: Edit Mask, Format Style, Edit, CheckBox, DropDownDataWindow, DropDownListBox, and RadioButton
- DataWindow Child: GetChild with almost all DataWindow functions
- DataWindow Controls: Button, Column including Computed Column, Computed Field, Text
- DataWindow Describe & Modify
- DataWindow ShareData & ShareDataOff
- DataWindow Dot Notation
- DataWindow Expressions & Operators
- DataWindow Validation Rules
- DataWindow Printing & SaveAs Automatically (No Coding) for PDF, Excel, HTML & Text

2.1.3 Objects and controls

- System Objects: Application, Connection, CORBAObject, DataStore, DataWindowChild, DragObject, DWObject, DynamicStagingArea, GraphicObject, ListViewItem, MDIClient, Menu (including Toolbar), Message, NonVisualObject, OLEObject (requires ActiveX), PowerObject, Transaction, TreeViewItem, UserObject, Window

- User Objects: Custom class user objects, custom visual user objects, standard class user objects, standard visual user objects, and n-tier NVOs
- Controls: CheckBox, CommandButton, DataWindow, DropDownListBox, DropDownPictureListBox, EditMask, GroupBox, Line, ListBox, ListView, MultiLineEdit, Picture, PictureButton, PictureHyperlink, PictureListBox, RadioButton, Rectangle, , SingleLineEdit, StaticHyperlink, StaticText, Tab, TreeView

2.1.4 System functions

Array functions, Data Type Checking and Conversion functions, Date, Day, and Time functions, International functions, Miscellaneous functions, Numeric functions, Print* & Printer* functions, Registry functions, String functions, System and Environment functions, Timing functions, Window functions

2.1.5 Embedded SQL

- Cursor/Non-Cursor SQL Statements
- Dynamic SQL Statements - Format 1, 2 and 3
- Stored Procedure SQL Statements
- Transaction Management

2.1.6 PowerScript

- PowerScript Statements: Assignment, CALL, CHOOSE...CASE, CONTINUE, CREATE, DESTROY, DO...LOOP, EXIT, FOR...NEXT, HALT, IF...THEN, RETURN, TRY...CATCH... FINALLY
- Reserved Words
- Pronouns (This, Parent, Super)
- Identifiers
- Operators & Expressions
- ASCII Characters (~n, ~t, etc.)
- Data Types: standard data types, any data type, date type format, system object data types, and forced conversion between data types.
- Constants
- Arrays
- Null Values
- Statement Continuation/Separation
- Comments
- OOP: Inheritance, Encapsulation, Polymorphism
- System Events & Functions
- User Defined Events & Functions: Global and Object Events & Functions
- Triggering & Posting Events
- Static Calls to Events & Functions
- Dynamic Calls to Events & Functions
- Extending, Overriding, and Overloading Events & Functions
- Arguments & Return Values
- Structures

2.1.7 Client-side integration

- External INI File, Registry, & DLL Support
 - Automatically Deploys INI and Registry to Appeon Server
 - Supports Profile functions and Registry functions
 - Supports calling client-side DLLs and Win32 API (requires ActiveX)
 - Supports calling server-side DLLs
- Run Windows applications using the “RUN” command (requires ActiveX)

2.2 Extended feature-set

In addition to all the “Standard” feature-set, Appeon Xcelerator is capable of converting additional PowerBuilder features that are generally Client/Server-centric. Namely, the DataWindow, system objects and controls, system functions, and the UI of Appeon Web applications have been extended with additional functionality.

The “Extended” supported features have been highlighted and summarized below. For a detailed list of Appeon supported features, please read the Appeon 2.8 Enterprise Edition product documentation *Appeon Supported Features Guide* and *Using the PowerBuilder Foundation Class Library with Appeon*, which can be downloaded from the Appeon Website: <http://www.appeon.net>.

2.2.1 DataWindow

- DataWindow controls: GroupBox, Picture, Oval, Rectangle and RoundRectangle
- DataWindow functions: Clear, GetBandAtPointer, GetFormat, GetValidate, ImportClipboard, ImportFile, ImportString, PointerX, PointerY, SetBorderStyle, and SetRedraw
- DataWindow properties: BringToTop, ControlMenu, MaxBox, MinBox, Resizable, RightToLeft, Title and TitleBar

2.2.2 Objects and controls

- Dynamic Tab Pages – OpenTab, OpenTabWithParm, CloseTab functions
- Dynamic User Objects – OpenUserObject, OpenUserObjectWithParm, CloseUserObject functions
- Environment object
- Controls: Oval and RoundRectangle

2.2.3 System functions

- Print functions: Print, PrintBitmap, PrintCancel, PrintClose, PrintDefineFont, PrintLine, PrintOpen, PrintOval, PrintPage, PrintRect, PrintRoundRect, PrintScreen, PrintSetFont, PrintSetSpacing, PrintSetup, PrintText, PrintWidth, PrintX and PrintY
- Printer functions: All are supported including PrintGetPrinter, PrintGetPrinters, PrintSetPrinter, and PrintSetupPrinter
- System and environment functions: Clipboard, GetEnvironment, Handle, Post and Send
- Numeric functions: Randomize
- Miscellaneous functions: PixelsToUnits and UnitsToPixels

2.2.4 User interface

Hot Keys, Shortcut Keys, Accelerator Keys

3 Appeon Xcelerator Performance

The Appeon Xcelerator deployment option boosts the runtime performance of Appeon Web applications to levels approaching PowerBuilder client/server. As a general rule of thumb, the runtime performance with the Appeon Xcelerator will be half as fast as PowerBuilder client/server. For example, a Window that takes 1 second to open in PowerBuilder would take 2 seconds to open on the Web with the Appeon Xcelerator. This boost in runtime performance makes the Appeon Xcelerator deployment option ideal for application windows that contain many DataWindows, including demanding PFC applications.

3.1 Non-PFC application performance

For non-PFC PowerBuilder applications, the performance of Appeon 2.8 Enterprise Edition with the Appeon Xcelerator deployment option is **3-10 times faster** than Appeon 2.8 Advanced Edition with the JavaScript deployment option and **20-50 times faster** than Appeon 2.7. Below are the detailed test results for Appeon Sales Application Demo that was used to run the benchmarks.

Non-PFC Web Application Response Time Comparison (in seconds)				
Operation	PowerBuilder Client/Server	Appeon 2.7 (JavaScript)	Appeon 2.8 (JavaScript)	Appeon 2.8 (Xcelerator)
Open w_order_view	0.343	6.875	1.0473	0.328
Open w_customer_maintenance	0.062	2.984	0.266	0.094
Open w_rpt_order_type	0.062	4.827	1.13	0.093
Open w_rpt_order_customer_summary	0.047	6.225	0.593	0.141
Test Environment: P4 1.8GHz, 512MB RAM, Win2K, Sales Application Demo (non-PFC)				

3.2 PFC application performance

For PFC-based PowerBuilder applications, the performance of Appeon 2.8 Enterprise Edition with the Appeon Xcelerator deployment option is **3-5 times faster** than Appeon 2.8 Advanced Edition with the JavaScript deployment option and **10-19 times faster** than Appeon 2.7. Below are the detailed test results for an unnamed 25MB customer PFC application that was used to run the benchmarks.

PFC Web Application Response Time Comparison (in seconds)			
Operation	Appeon 2.7 (JavaScript)	Appeon 2.8 (JavaScript)	Appeon 2.8 (Xcelerator)
Open System Security > Update > User Permissions	8.4	1.9	0.6
Open Delivery Order and Invoice > Update > Delivery Order	15	4.1	0.8
Open Purchase > Order > Update > Request	15.8	4.6	1.5
Test Environment: P4 1.8GHz, 512MB RAM, Win2K, customer PFC app (25MB)			

4 Conclusion

Appeon is capable of handling the most demanding projects and enterprise requirements; however, care should be taken in selecting the most appropriate deployment option (Pure-JavaScript or Appeon Xcelerator). In general, Appeon Xcelerator deployment option is most beneficial for migrating large and/or complex PowerBuilder client/server applications. It reduces the amount of effort required to migrate your application to the Web and J2EE. At the same time, it yields a Web application that retains more of the rich PowerBuilder functionality and fast client/server performance than a Pure-JavaScript deployment. Whether your organization plans to embark on a Web migration or new Web development project, Appeon has the deployment option that will give you just the amount of power you need.



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