ELEVATE 2023

Sneak Peek PowerBuilder 2025

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DISCLAIMER

The following information is being shared in order to outline some of our current product plans. We are hopeful that the following can shed some light on our roadmap, but it is important to understand that it is being shared for INFORMATIONAL PURPOSES ONLY, and not as a binding commitment.

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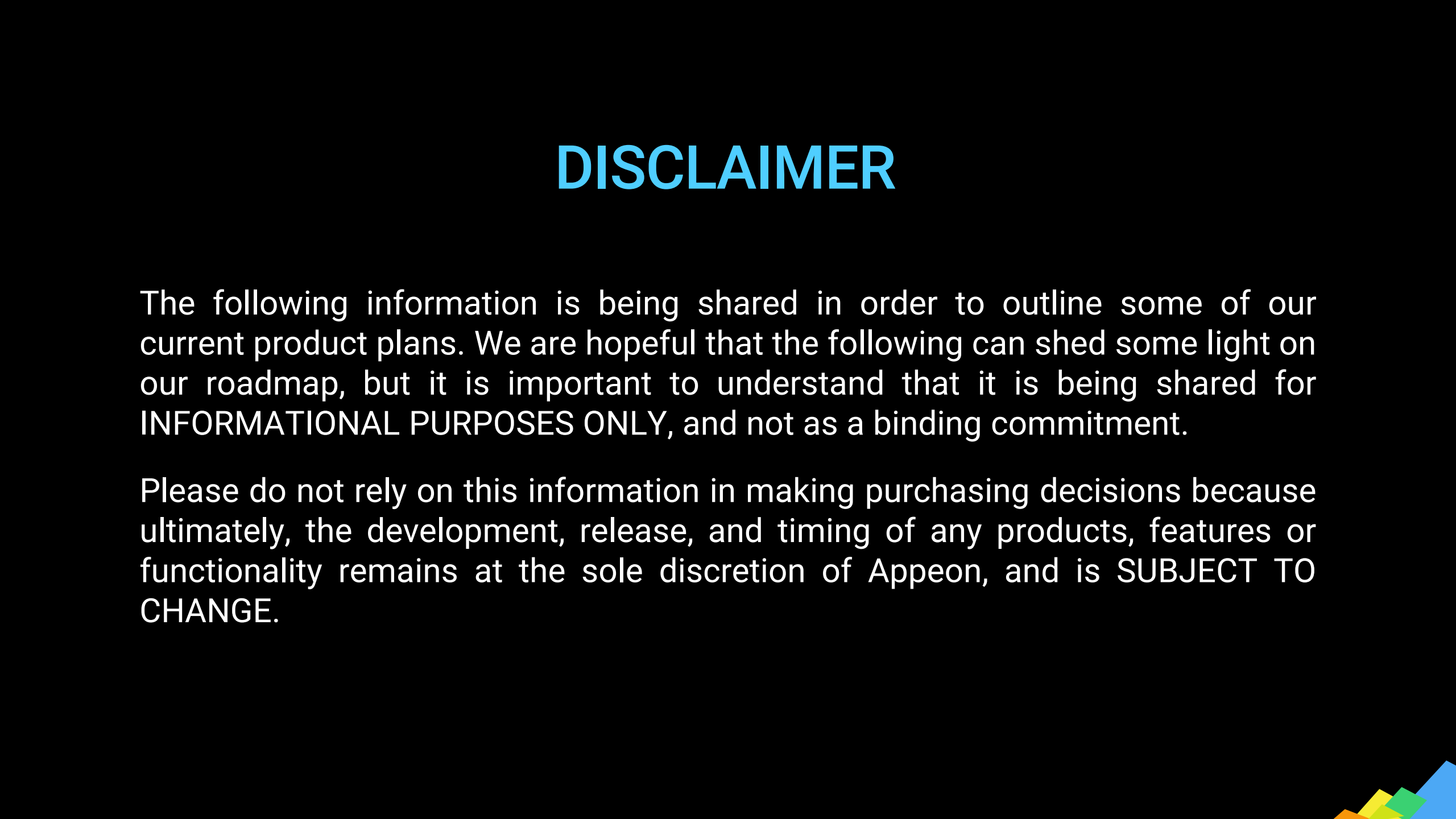


Session Agenda

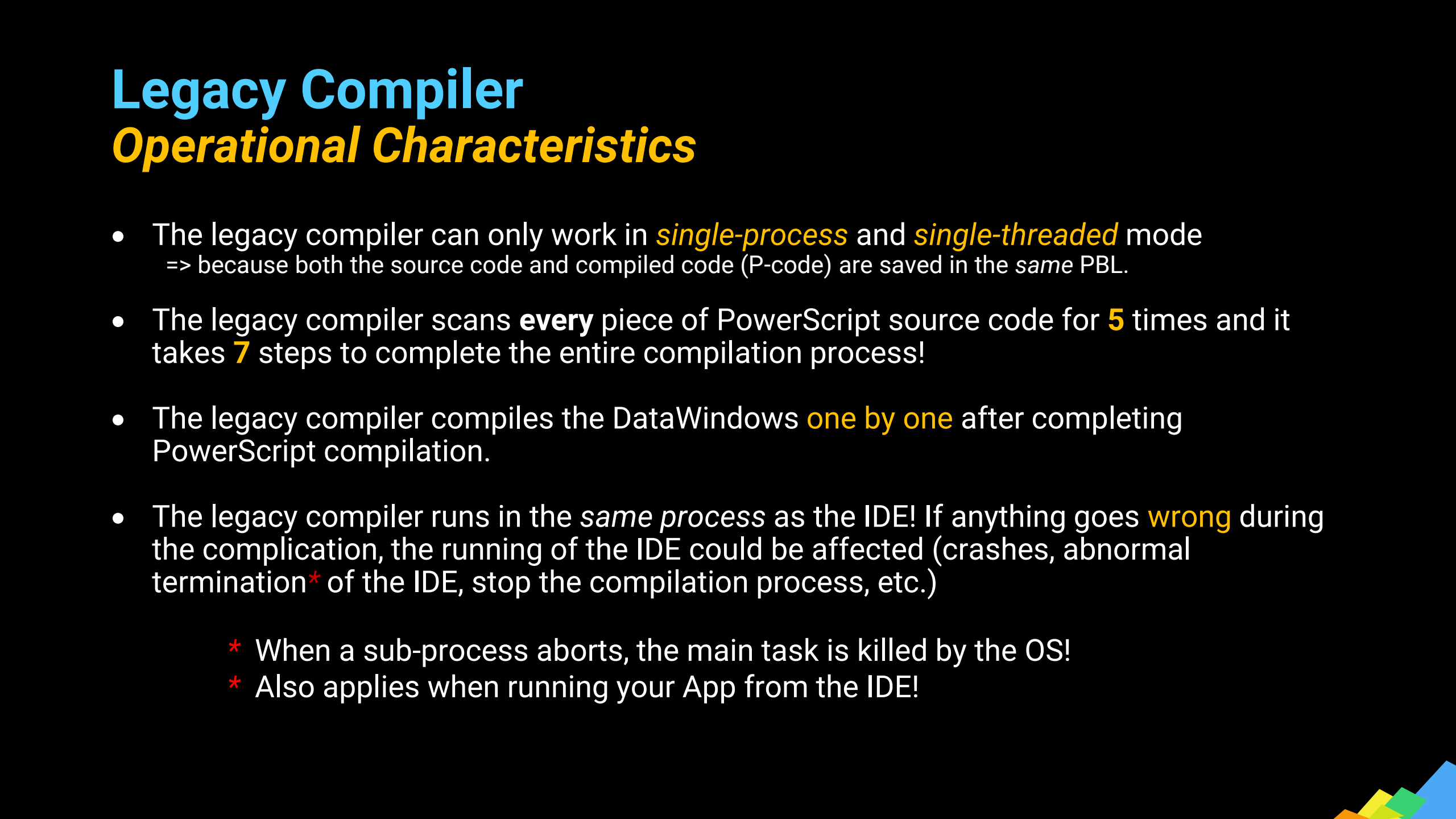
- New PowerBuilder Compiler!
  - Legacy Compiler vs.
  - New Compiler * - Only available in the *Professional* and *CloudPro* editions
  - New WorkSpace → Solution
  - Demo
- New PowerScript Editor
  - Better code readability, code efficiency, code navigation
  - Continual improvements planned across revisions

Tip: Product Roadmap → https://www.appeon.com/developers/roadmap

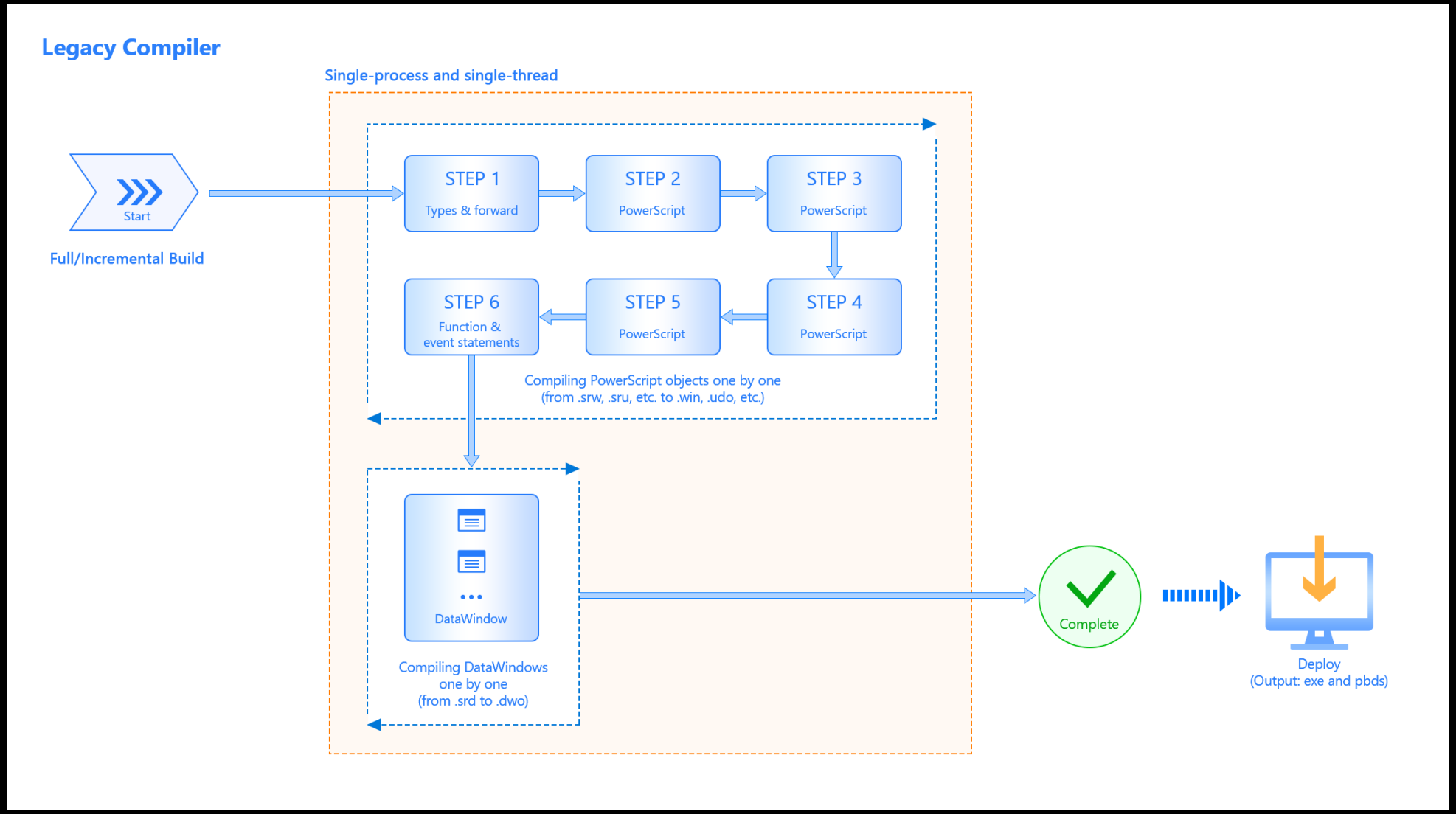
Legacy Compiler
Operational Characteristics

- The legacy compiler can only work in *single-process* and *single-threaded* mode
  => because both the source code and compiled code (P-code) are saved in the *same* PBL.
- The legacy compiler scans **every** piece of PowerScript source code for **5** times and it takes **7** steps to complete the entire compilation process!
- The legacy compiler compiles the DataWindows one by one after completing PowerScript compilation.
- The legacy compiler runs in the *same process* as the IDE! If anything goes wrong during the complication, the running of the IDE could be affected (crashes, abnormal termination* of the IDE, stop the compilation process, etc.)

  * When a sub-process aborts, the main task is killed by the OS!
  * Also applies when running your App from the IDE!



Legacy Compiler – Process Flow



New Compiler
Operational Characteristics

- The new compiler can work in multiple-process and multiple-thread mode, because the source code and Pcode of every object are now stored in separate files.

- The new compiler scans every piece of source code only once (instead of 5 times) and takes **4** steps (instead of 7 steps) to complete the entire compilation process.

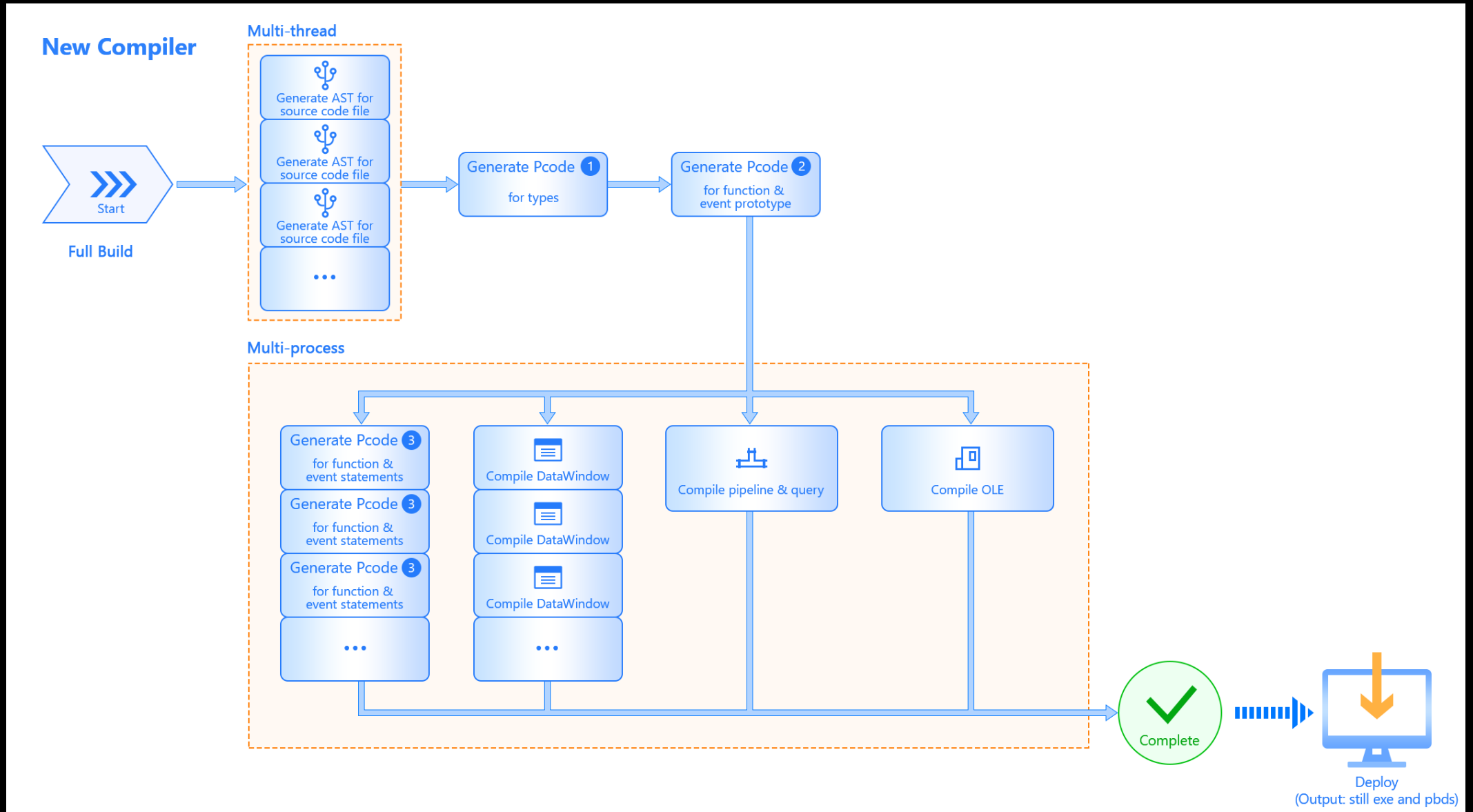
- The new compiler creates an AST (*abstract syntax tree*) for every source code file. The AST then enables *multiple-thread* concurrent compilation and thus, is *much faster*!

- The performance boost of the new compiler mainly comes from the concurrent multiple-process handling of the P-code generation and DataWindow compilation:
  - The P-code generation step now works in a multiple-processing mode which is much faster!
  - DataWindow compilation also now works in multiple-processing mode concurrently with the P-code generation.

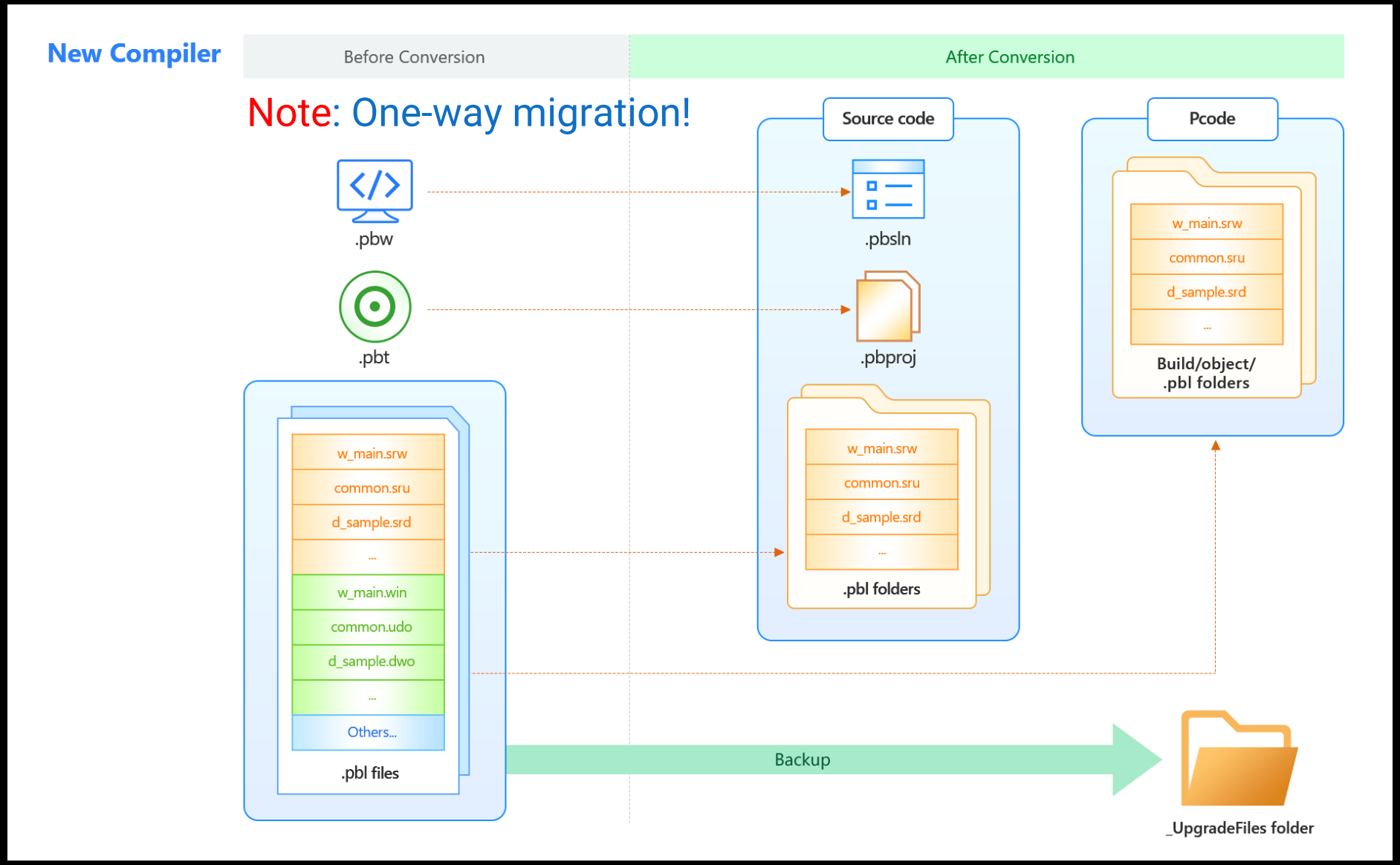
- The compilation process runs in parallel with the IDE process. The two processes do not affect each other.

Note: No changes required for any Client/Server, PC, or PS App deployment!

New Compiler – “Full Build” Flow



New Compiler – Convert to "*Solution*"!



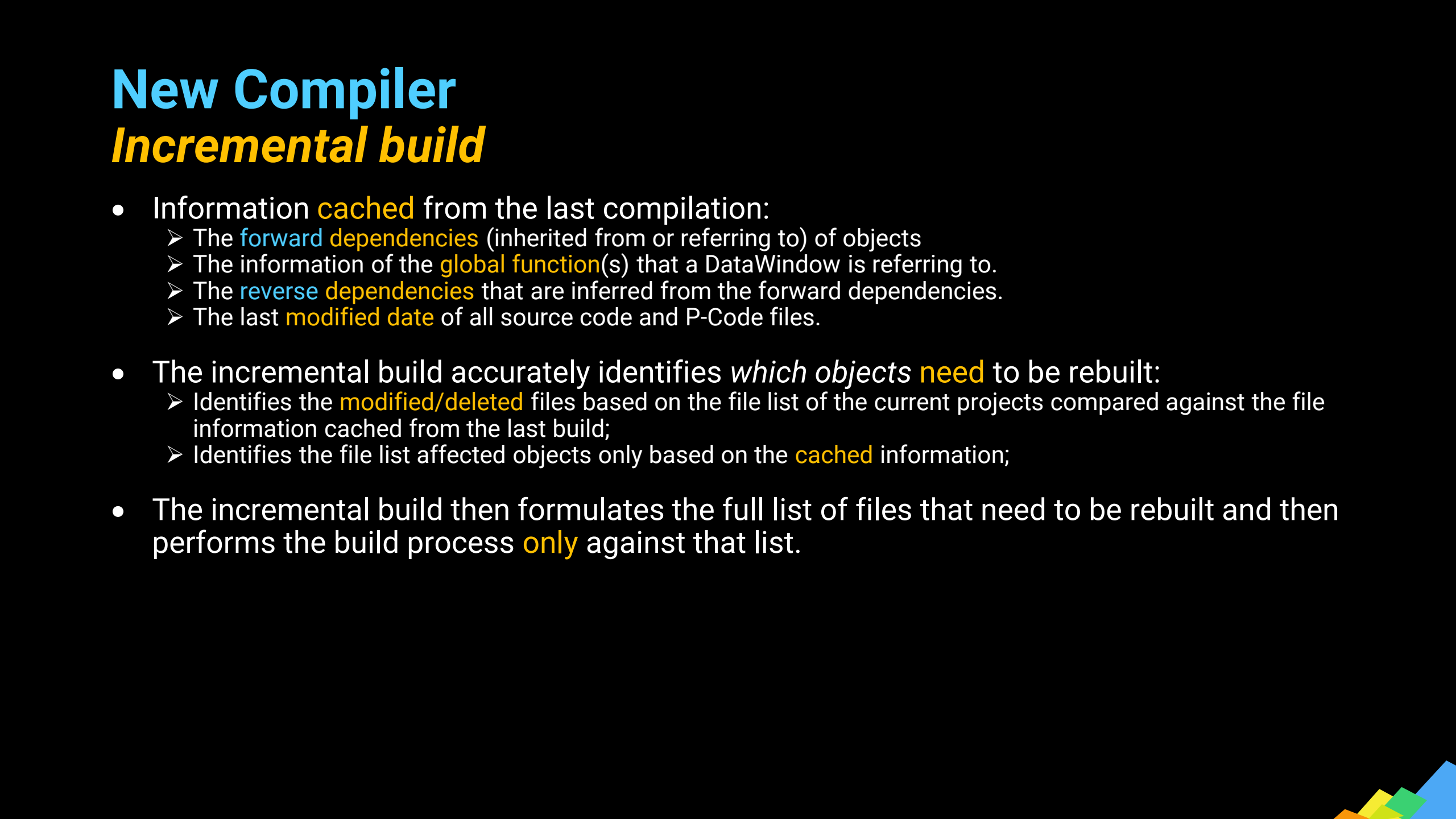
Workspace to Solution Migration Demo

New Compiler
Incremental build

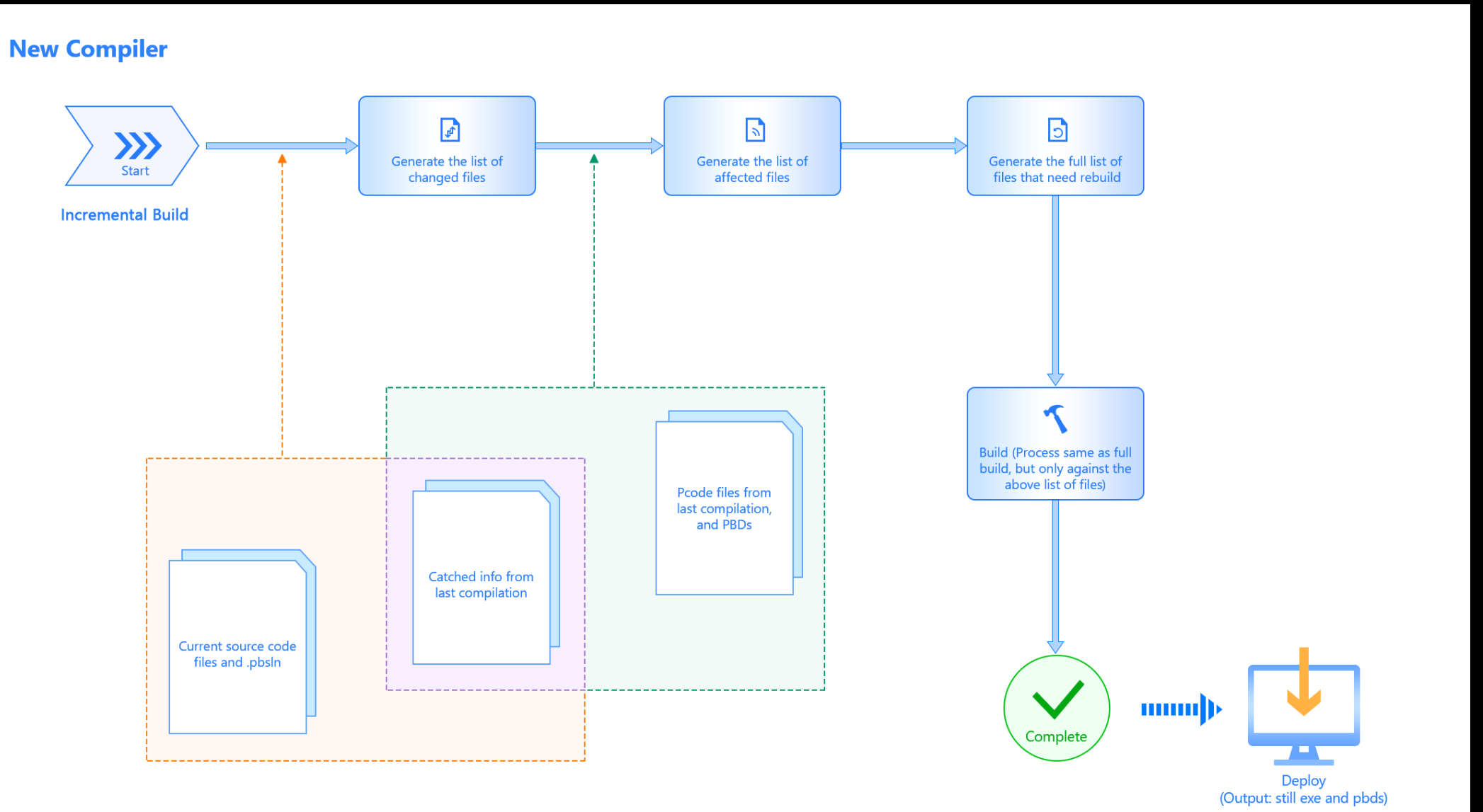
- Information cached from the last compilation:
  - The forward dependencies (inherited from or referring to) of objects
  - The information of the global function(s) that a DataWindow is referring to.
  - The reverse dependencies that are inferred from the forward dependencies.
  - The last modified date of all source code and P-Code files.

- The incremental build accurately identifies *which objects* need to be rebuilt:
  - Identifies the modified/deleted files based on the file list of the current projects compared against the file information cached from the last build;
  - Identifies the file list affected objects only based on the cached information;

- The incremental build then formulates the full list of files that need to be rebuilt and then performs the build process only against that list.



New Compiler – “Incremental” Flow



New Compiler
Performance

Full Build	Legacy Compiler	New Compiler
Code Example App • 388 PowerScript objects • 194 DataWindow objects	37s	10s
Customer App 1 • 3,154 PowerScript objects • 5,348 DataWindow objects	18m 56s	2m 50s
Customer App 2 • 7,495 PowerScript objects • 10,853 DataWindow objects	1hr 31m 21s	9m 33s

Incremental Build		
Code Example App	36s	6s
Customer App 1	18m	23s
Customer App 2	3m	5s

New Compiler

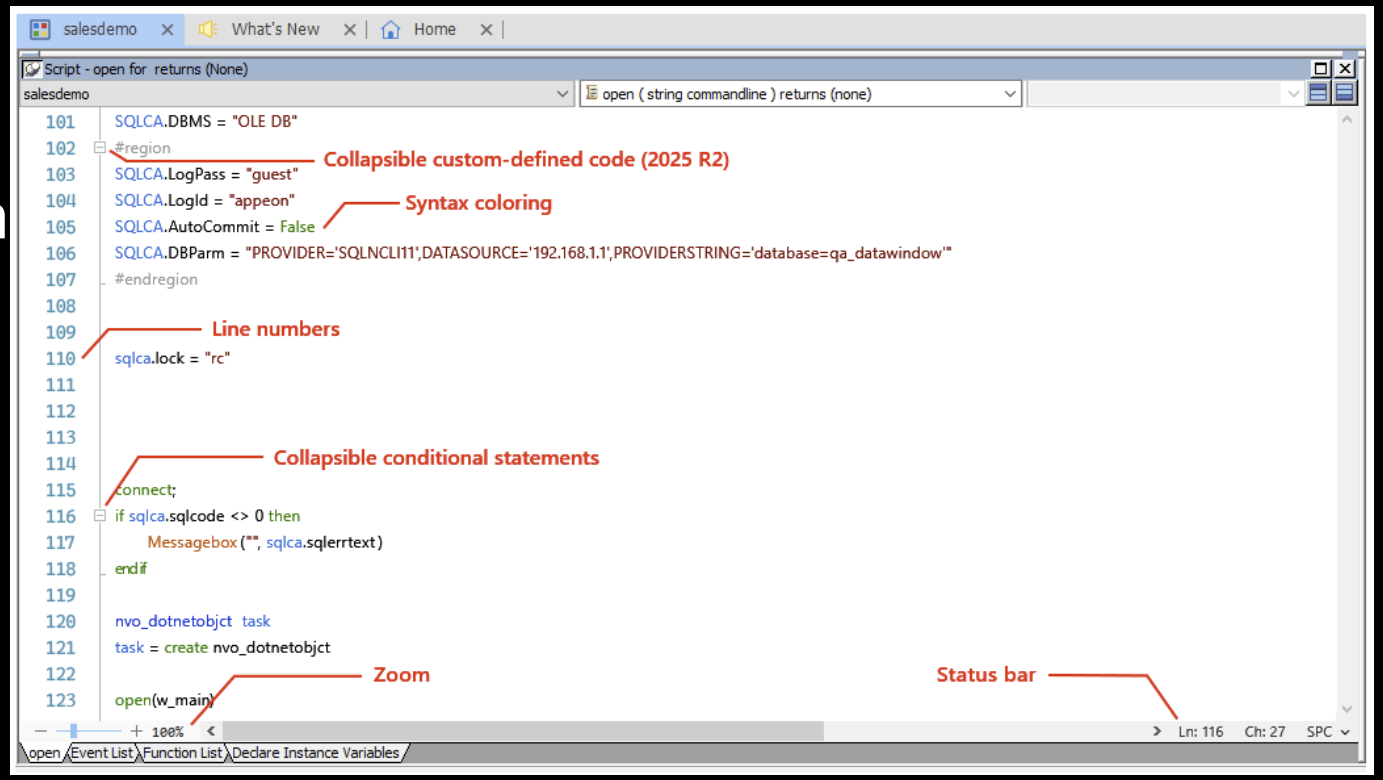
More Benefits

- **Plus …**
  - Much less chance of PBL *corruption*!
  - Better *integration* with Git/SVN
  - *Eliminate* logging the entire PBL to SCC!
  - Allows *external tools* to be used on object source (even using VS Code)!
  - Still works with Legacy SCC (including Native)

Incremental Build Demo

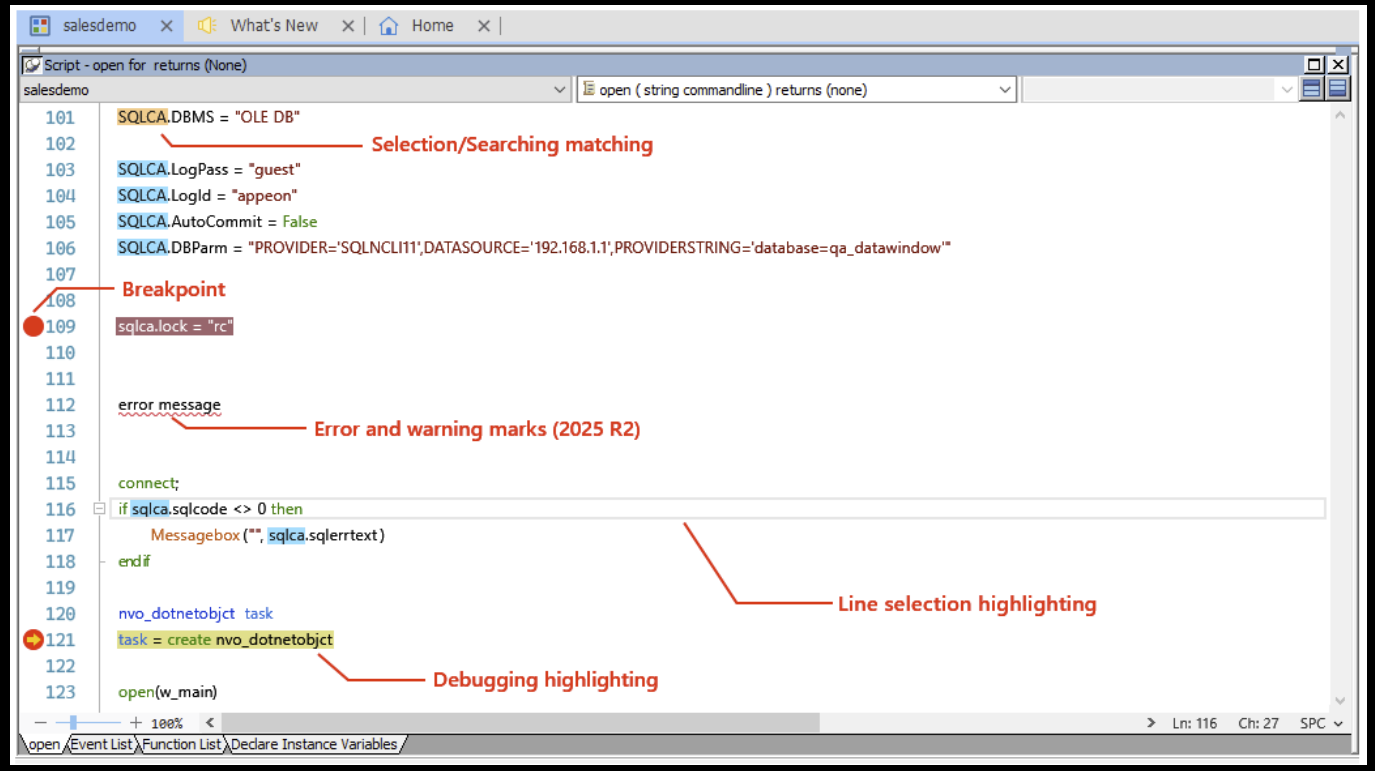
Modern Code Editor
Code Readability

- How to Achieve…
  - Syntax coloring
  - Line numbers/status bar/zoom
  - Collapse/expand code
    - ✓Collapsible conditional statements
    - ✓Collapsible custom-defined code blocks (R2)



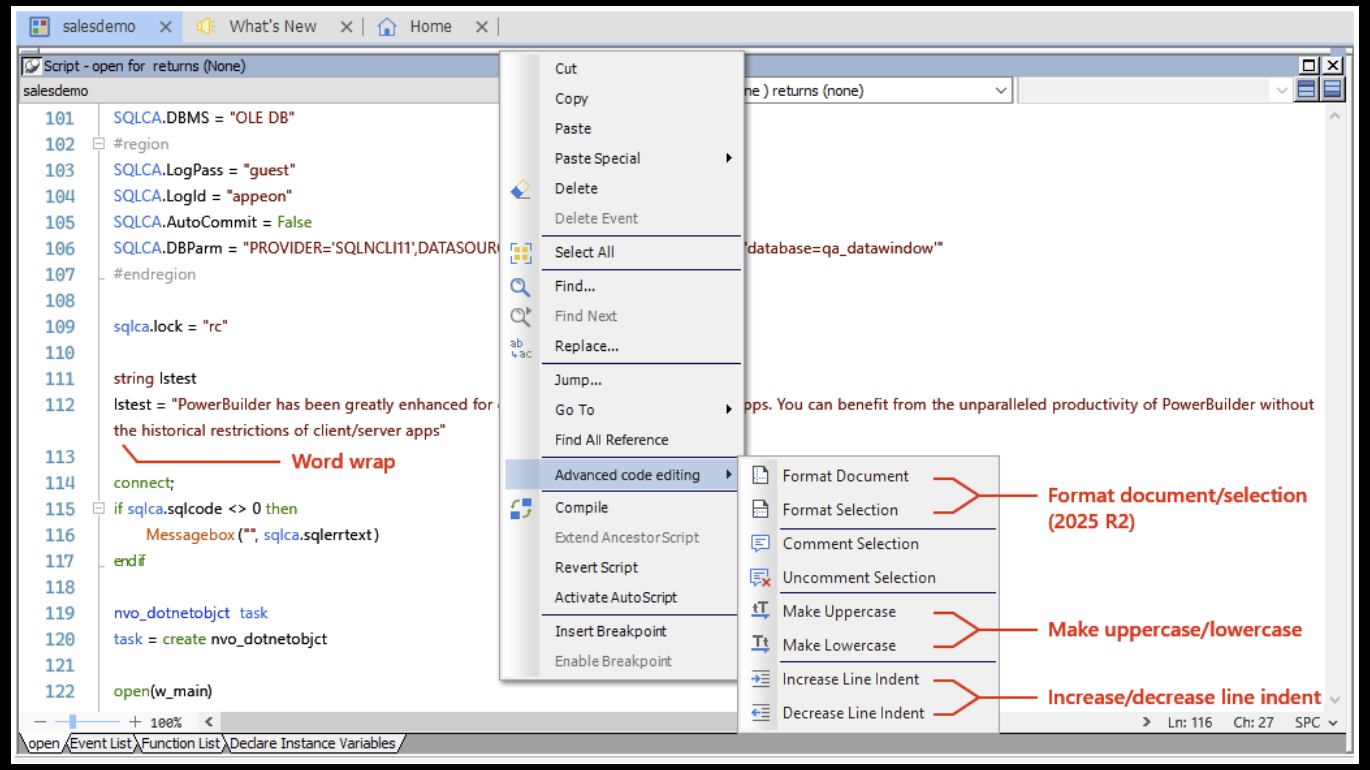
Modern Code Editor
Code Readability (Continued)

- Improved *Highlighting*
  - Selection/search matching
  - Line selection highlighting
  - Debugging highlighting
  - Error & warning marks (R2)



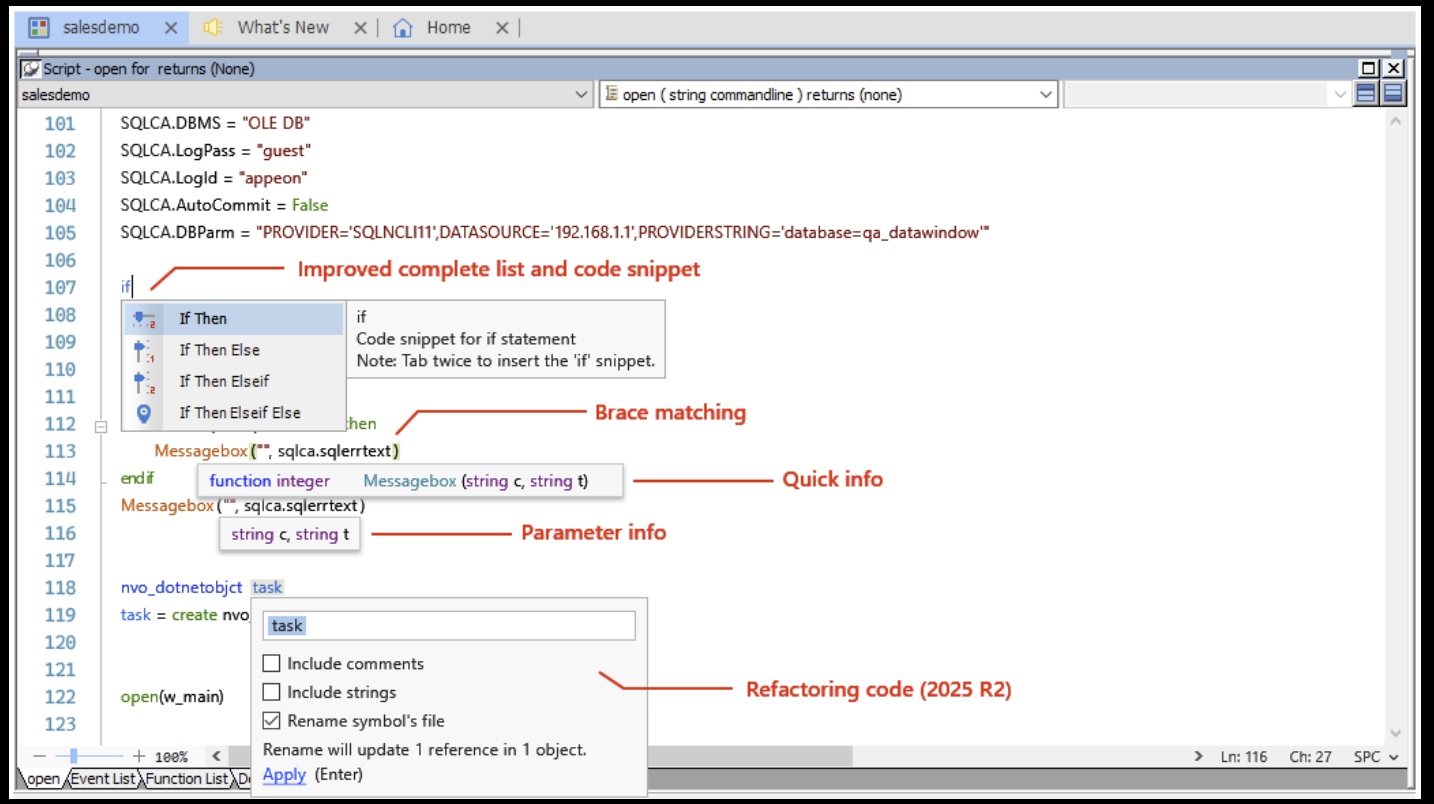
Modern Code Editor
Code Readability (Continued)

- *Advanced* code editing
  - Word wrap
  - Improved Undo
  - Make uppercase/lowercase
  - Increase/decrease line indent
  - Format document/selection (R2)



Modern Code Editor
Coding Efficiency

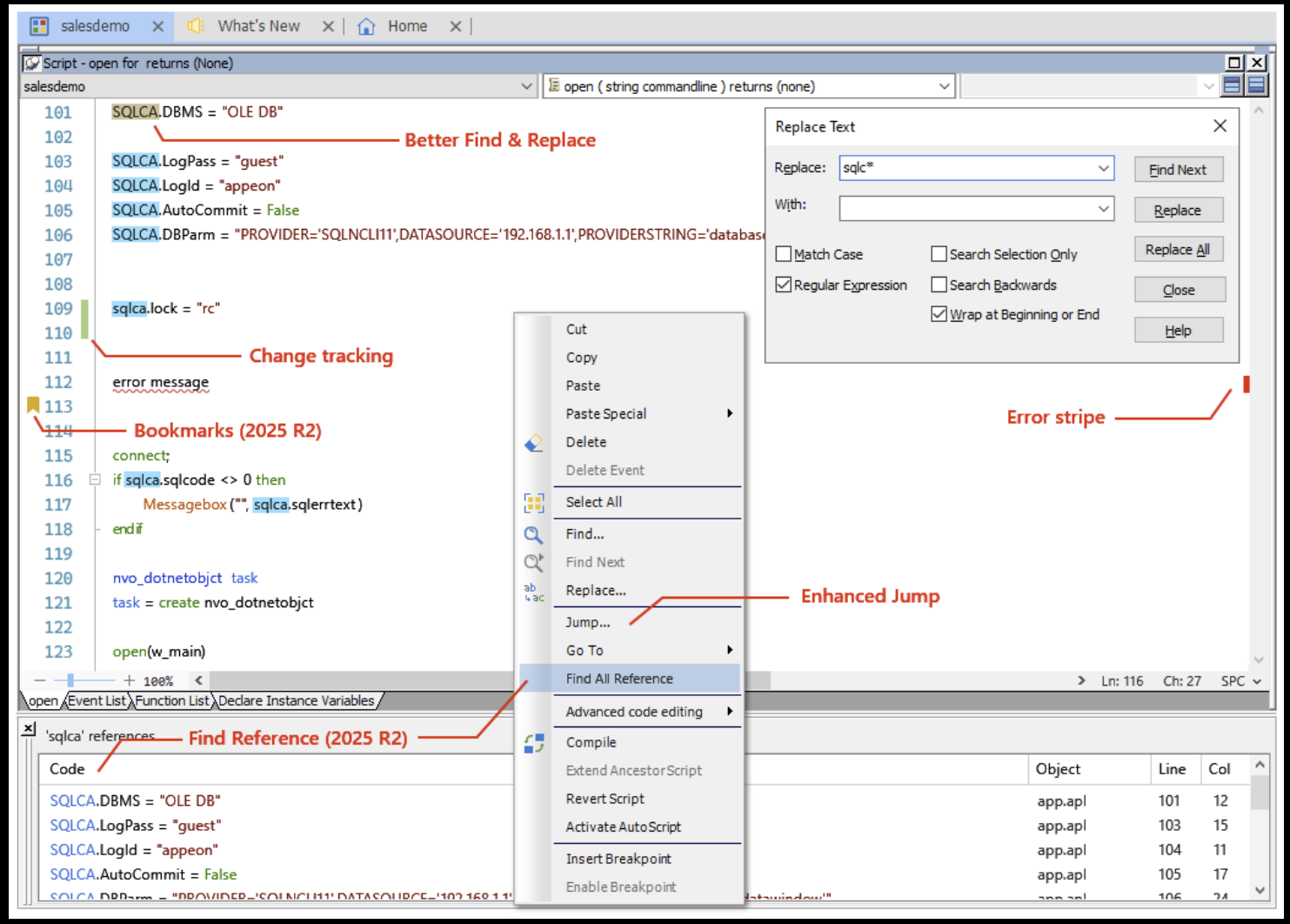
- Improved completion list
  - ✓Include code snippet
  - ✓Type matching completion
- Provide context-aware info
  - ✓Quick info
  - ✓Parameter info
- Refactoring code (R2)



Modern Code Editor

Code Navigation

- Better Find & Replace
- Enhanced Jump
- Change Tracking
- Error Stripe
- Find All Reference *(R2)*
- Bookmarks *(R2)*



Time

- Q: Will the Solution be a *mandatory* migration step? A: No
- Q: Can a Solution be migrated *back* to a Workspace? A: No
- Q: Will the Solution support *Client/Server* compiles? A: Yes
- Q: Will the Solution support *PowerClient/PowerServer* compiles? A: Yes
- Q: Will the Solution support *M-code* compiles? A: No, only P-code
- Q: Will Appeon continue to support Workspace development / compilation? A: Yes
- Q: Will the Solution paradigm be added to InfoMaker? A: Possibly in the future
- Q: Will the Solution paradigm be supported by PBAutoBuild / ORCAScript? A: Yes
- Q: Will the Solution paradigm support PBR resources in an EXE/PBD? A: Yes
- Q: Will the Solution support PBD *only* compiles? A: No

=> Please join us in the Chat session if you have more questions!

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