presented by

Microsoft Sample Code on GitHub and Walkthrough on Firmware Updates to Windows Update (WU)

Spring 2018 UEFI Seminar and Plugfest

March 26-30, 2018

Presented by Bret Barkelew and Keith Kepler

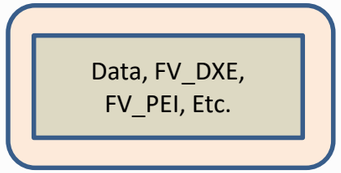
Facilitated by Michael Anderson

4 Steps to WU (FW Perspective)

- Create the capsule binary payload
- Create the Windows system file (.inf)
- Package and sign WU deliverables (.bin and .inf)
  - If using HLK, this is a .hlkx. Otherwise, use attestation signing on .cab
- Publishing to Windows Update
- NOTE: This will be required for 10 in S mode

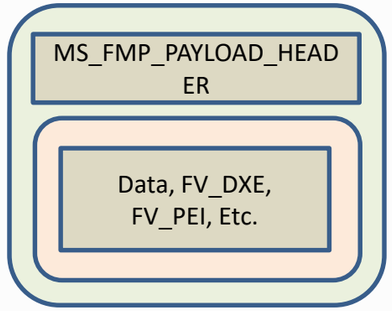
Growing a Capsule, Inside Out

- Start with a payload
- Tools available on GitHub
  - Links at end of section



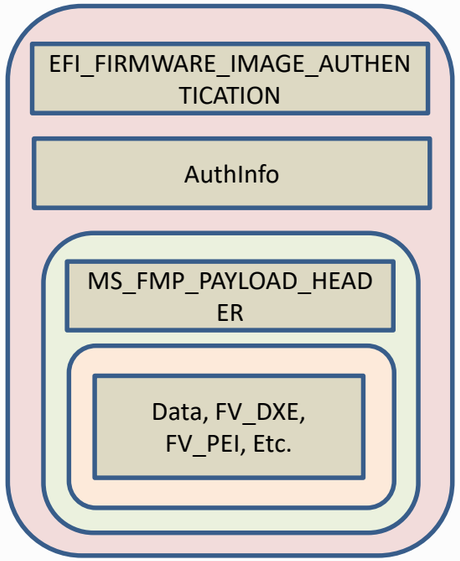
Growing a Capsule, Inside Out

- [Optional Step] Use GenMsPayloadHeader.exe to set Version, LSV, etc.



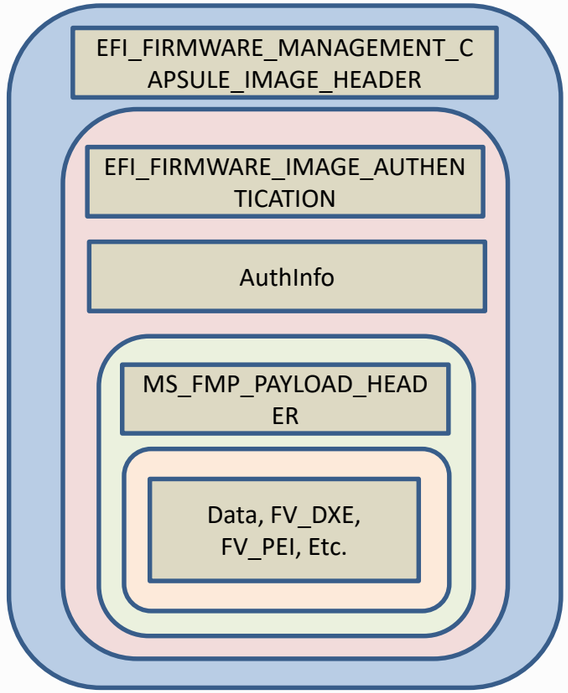
Growing a Capsule, Inside Out

- Use GenFmpImageAuth.py and the capsule driver signing cert to sign capsule
- This signature is for the capsule framework, not Windows. It will be evaluated by the FMP driver



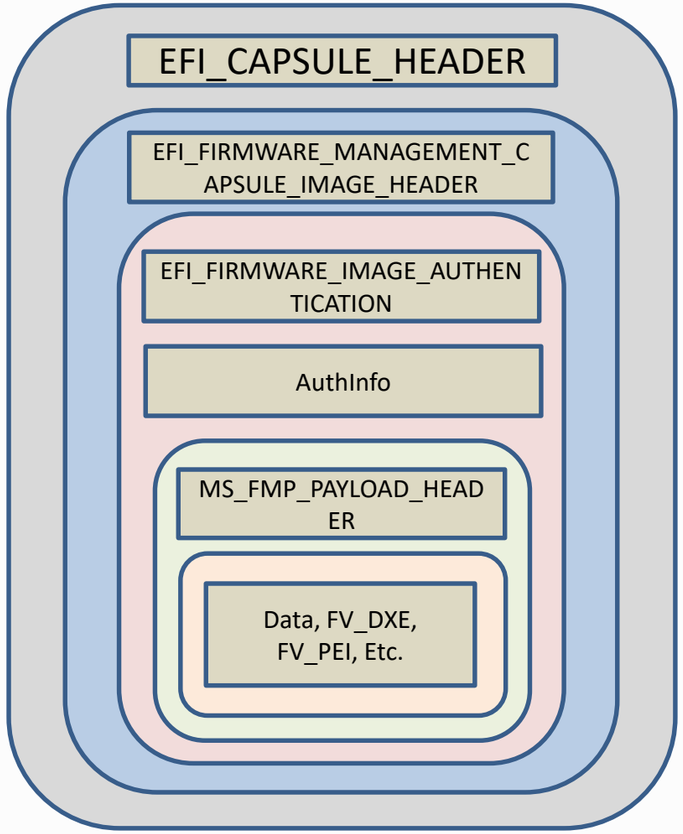
Growing a Capsule, Inside Out

- Use GenFmpCap.exe to wrap the signed payload with a GUID that indicates at which driver it is targeted
- This GUID is the one declared in the ESRT (and .inf file)



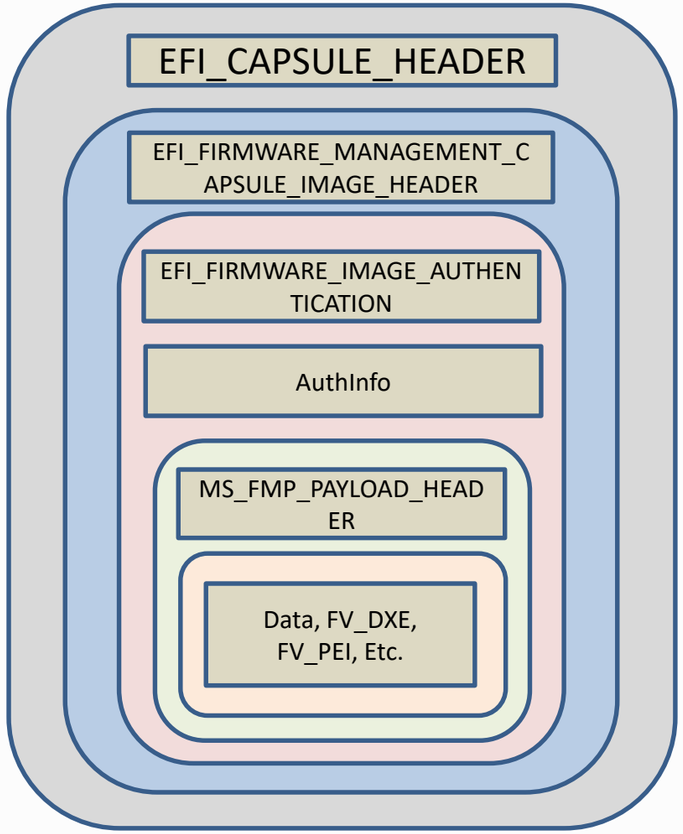
Growing a Capsule, Inside Out

- Use GenFv.exe to wrap the FMP payload in a capsule wrapper
- This wrapper uses the gEfiFmpCapsuleGuid to indicate it should be processed by the framework



Growing a Capsule, Inside Out

- Et voila…
- This binary payload is now ready for WHQL signing (once we pair it with an .inf and .cat file)



To .INFinity, and beyond

- Use CreateWindowsCapsule.py to generate the Windows .inf file to accompany the binary payload
  - Does not consume the payload, but the name parameter must match
- This utility will also create a .cat file and test-sign it (with .pfx specified in parameters) for validation on test machine [optional for .cab attestation signing]

Tools on GitHub

MS_UEFI/MsSampleFmpDevicePkg/Tools/ - Build Process and Windows Tools

https://github.com/Microsoft/MS_UEFI/tree/share/MsCapsuleSupport/MsSampleFmpDevicePkg/Tools

MS_UEFI/MsSampleFmpDevicePkg/Tools/GenTools/ - Capsule Binary Payload Generation Tools

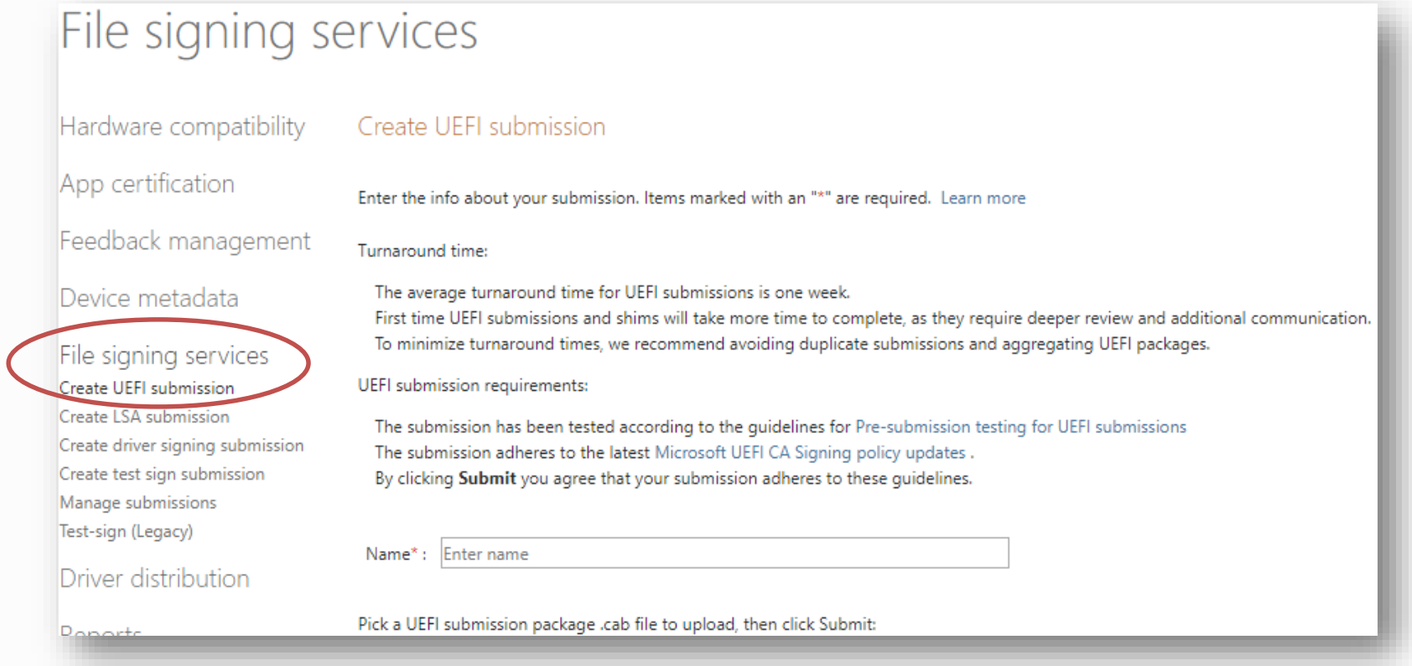
https://github.com/Microsoft/MS_UEFI/tree/share/MsCapsuleSupport/MsSampleFmpDevicePkg/Tools/GenTools

Example: Attestation signing a Windows driver (same process for Capsule .cab file and EV signing)

https://docs.microsoft.com/en-us/windows-hardware/drivers/dashboard/attestation-signing-a-kernel-driver-for-public-release

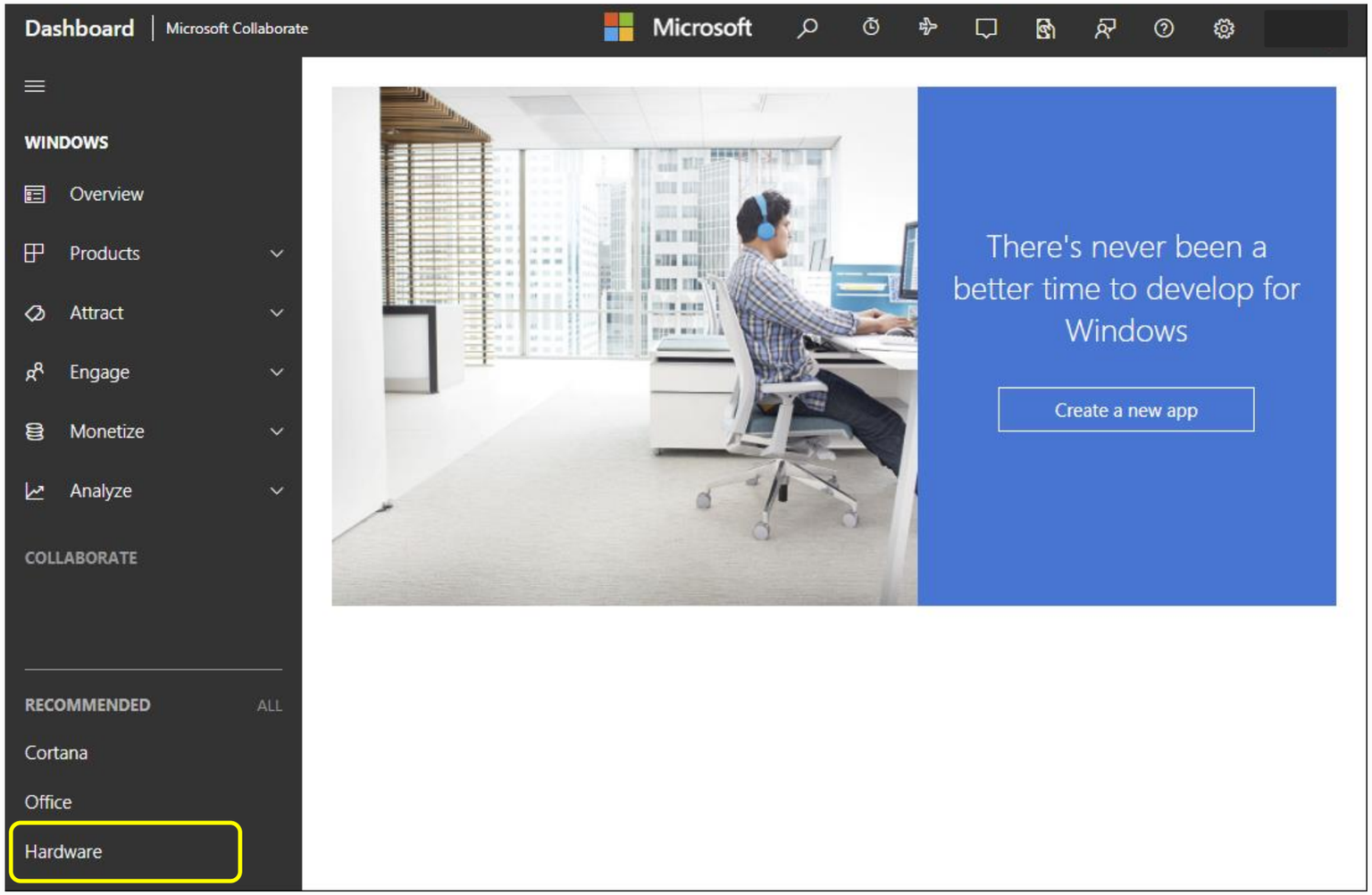
UEFI EFI Signing - Sysdev

- https://sysdev.microsoft.com - UEFI help section
- Used for signing .EFI files, not for UpdateCapsule firmware updates
- .CAB must be EV signed before submitting to Sysdev



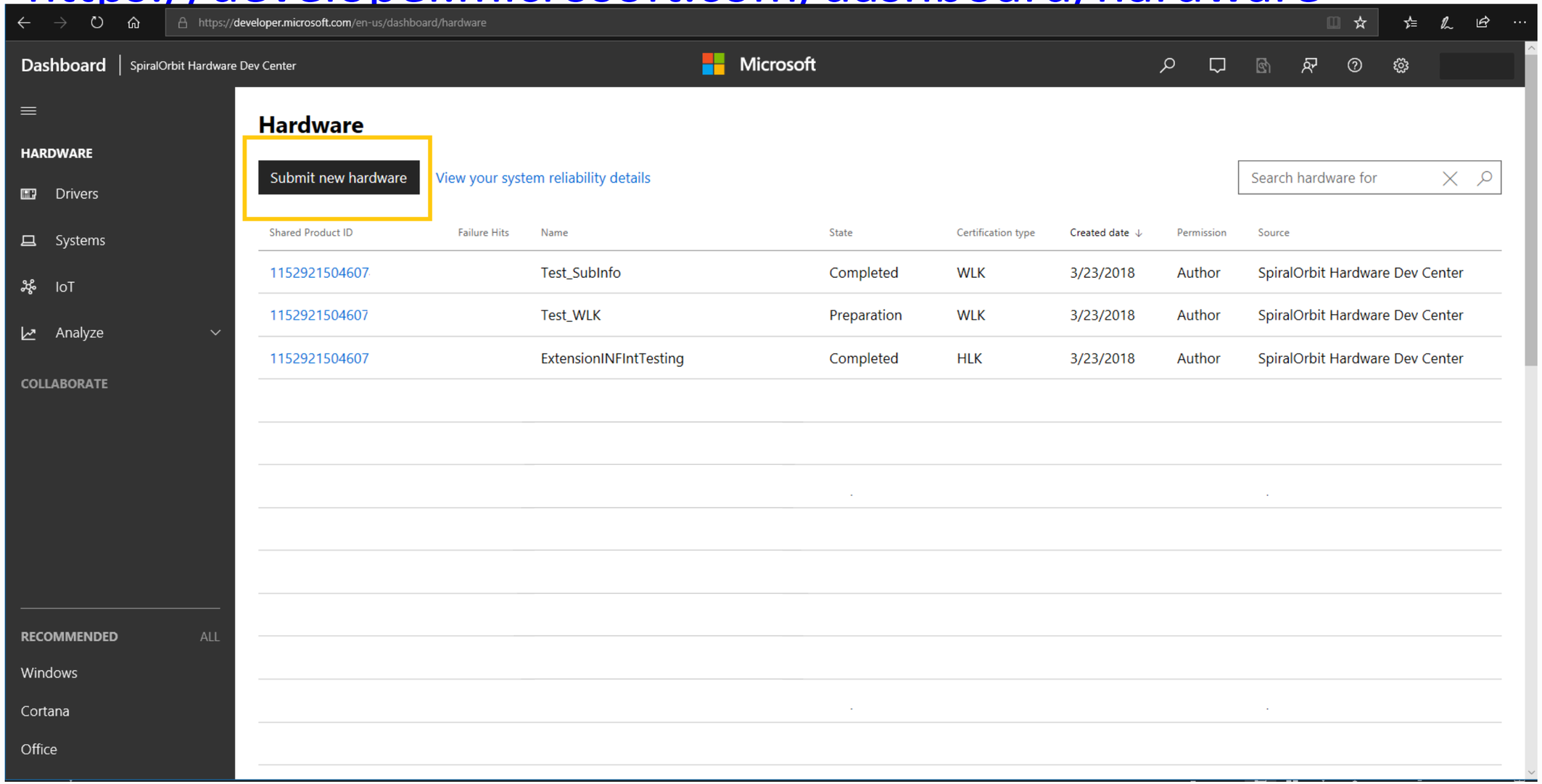
Walk through for Signing UEFI Pkg

- https://developer.microsoft.com/dashboard

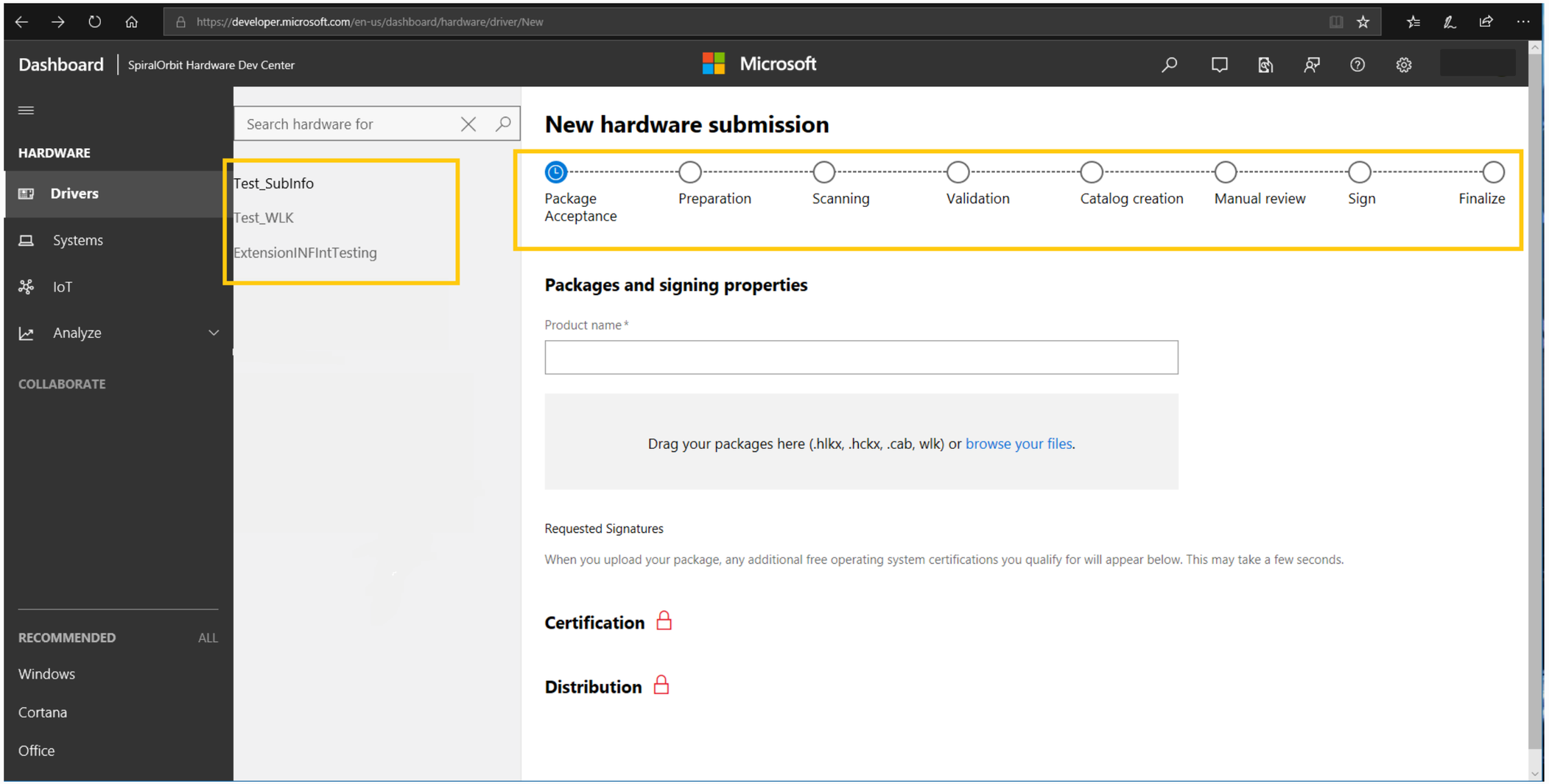


Submit new hardware

https://developer.microsoft.com/dashboard/hardware

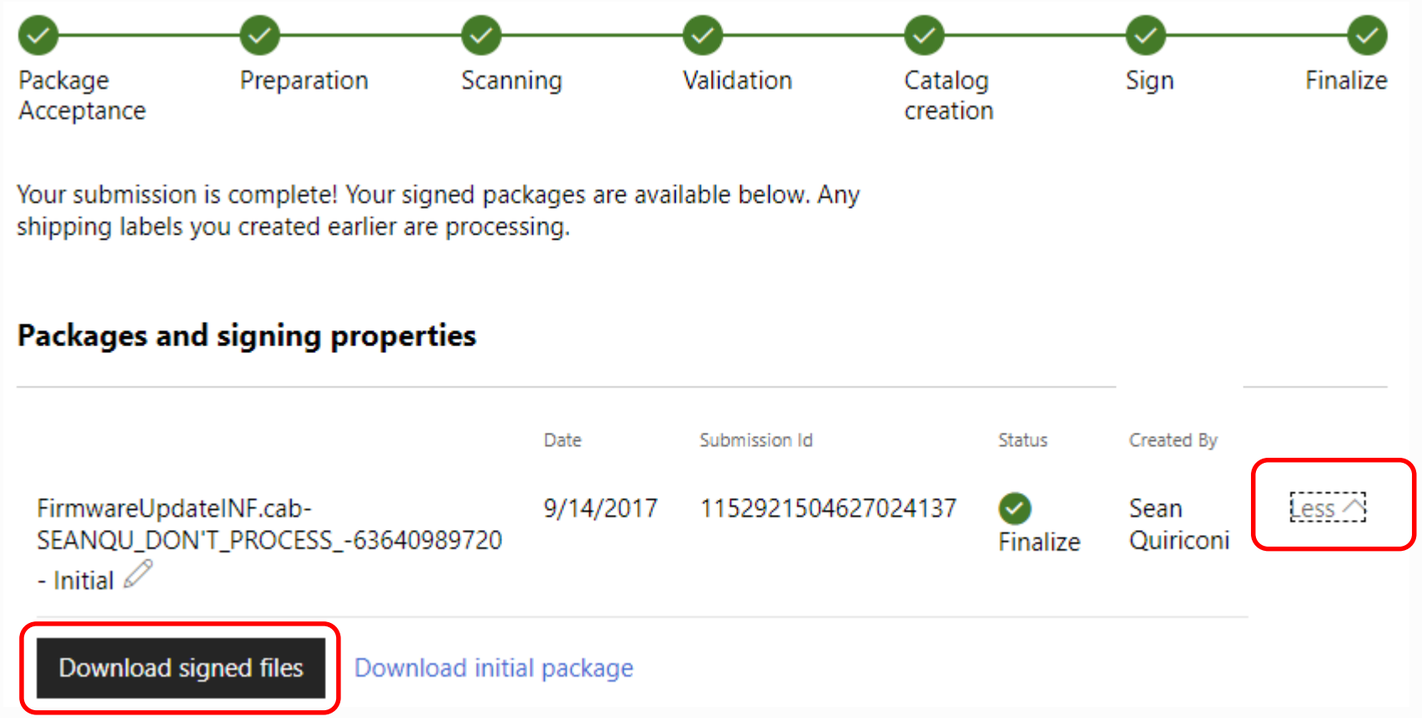


Submit your HLKx or .CAB capsule package

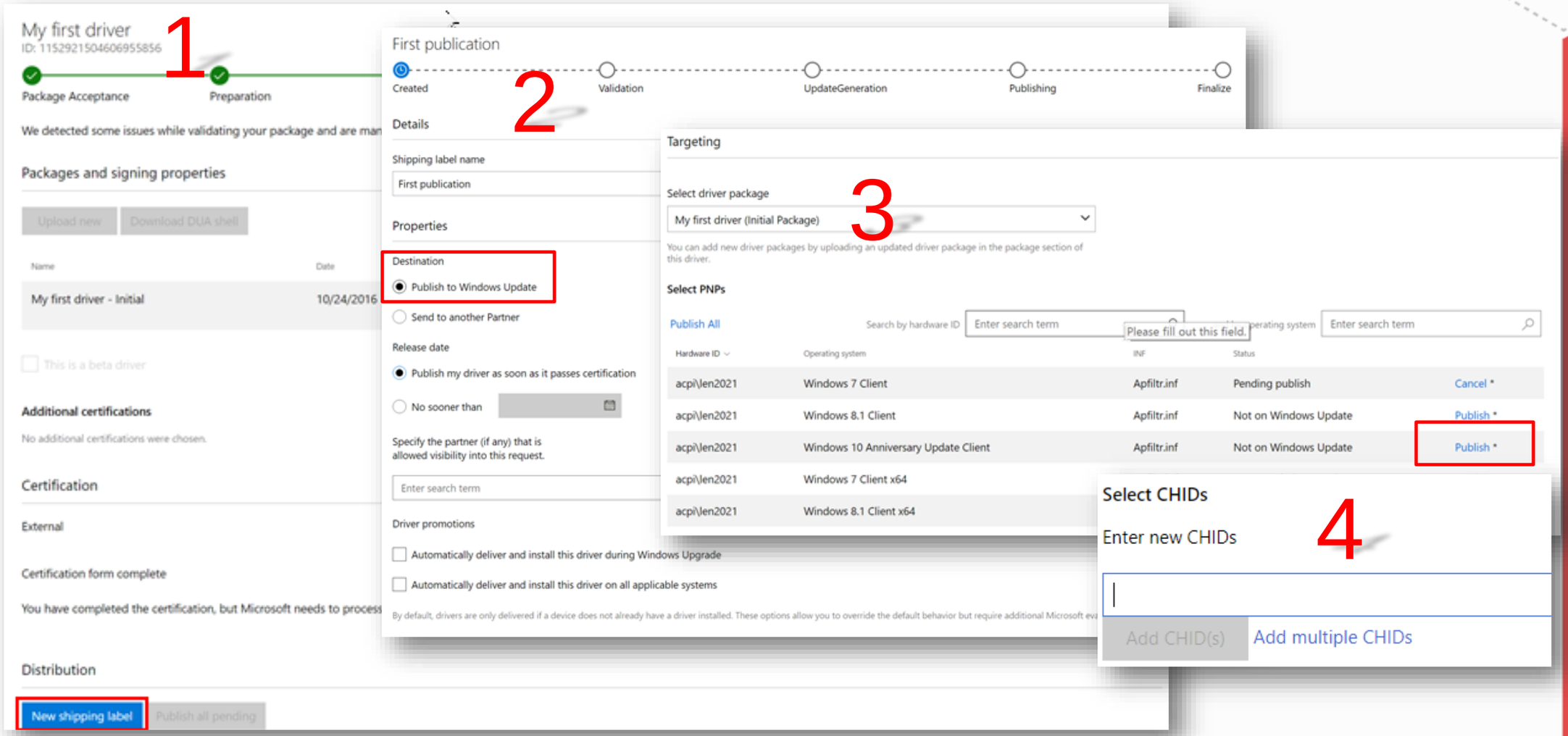


Local Testing

- Download your signed capsule update package
- DevMgr->Firmware->Driver->Update Driver *or*
- Right click the INF and choose *Install*



Publish to Windows Update



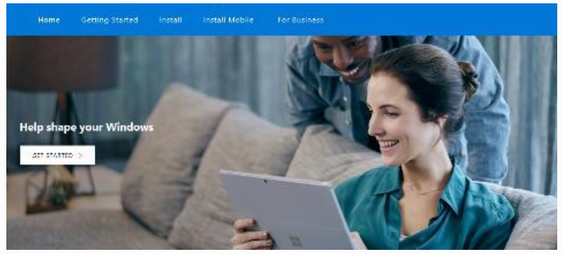
Windows Insider Program (WIP)

- All Firmware published to WU goes through WIP (can add up to 2 weeks)
- Status is "Microsoft approval"
- Great opportunity for real world testing with systems

Two Steps to become an Insider

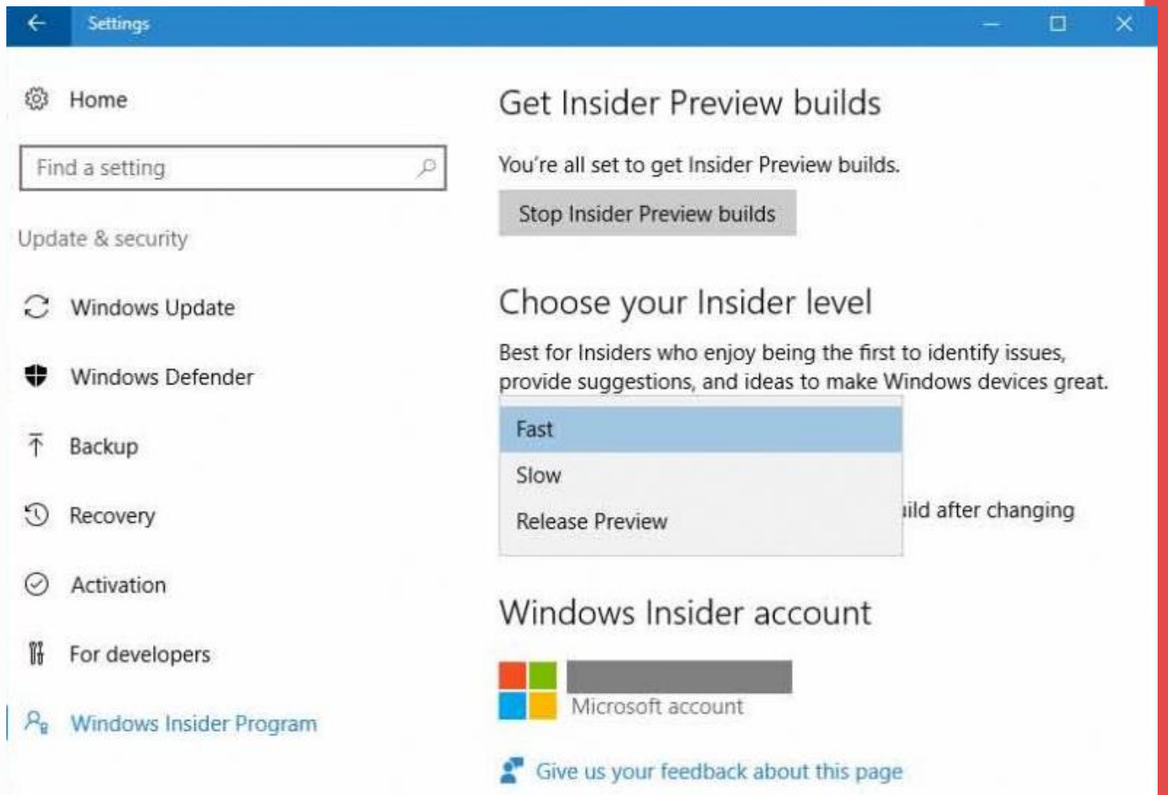
1

Sign up at
http://insider.windows.com



2

Update each client as needed

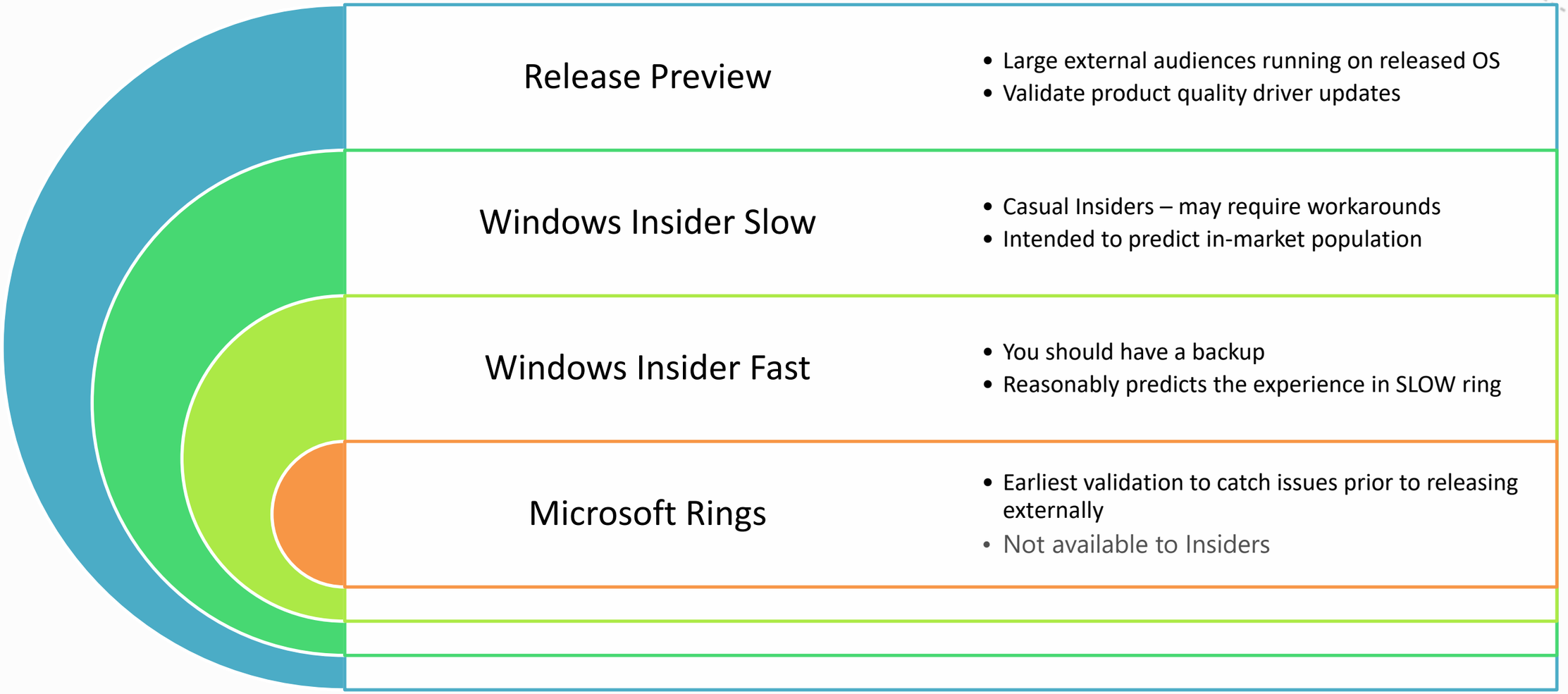


Best Practice

Support both *Released* OS and *Upcoming* OS

Insider Level	**OS**
Fast or Slow	Upcoming
Release Preview	Released

Each Ring has an Intended Experience



Rings enable the broadest set of customers to engage at their own risk level

Important Terms

Windows Insiders

Fans of the Windows 10 OS who want to experience latest offerings from Microsoft in order to guide and shape future releases of the operating system

Ring

A defined customer experience that guides how drivers are flighted to Windows

Flighting

The automatic distribution, monitoring and evaluation of a driver to a set of customers in defined rings

Shipping Label

The concept in DevCenter used to define the destination of a driver and the method of delivery

Questions?

Thanks for attending the Spring 2018 UEFI Plugfest

For more information on the UEFI Forum and UEFI Specifications, visit http://www.uefi.org

Questions regarding this presentation mailto:SAUEFI@Microsoft.com

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