Boeing Proposal

Received from Todd Gould

Folks, I took a action at the last ASDM meeting to work a new software classification tree proposal for ARINC 667-2 which better supports the growing number of "non-safety" software/data types. Also the current tree is much too complex in my opinion. This starting proposal is a fairly significant change for the current tree but also does not contradict previous work in a significant way.
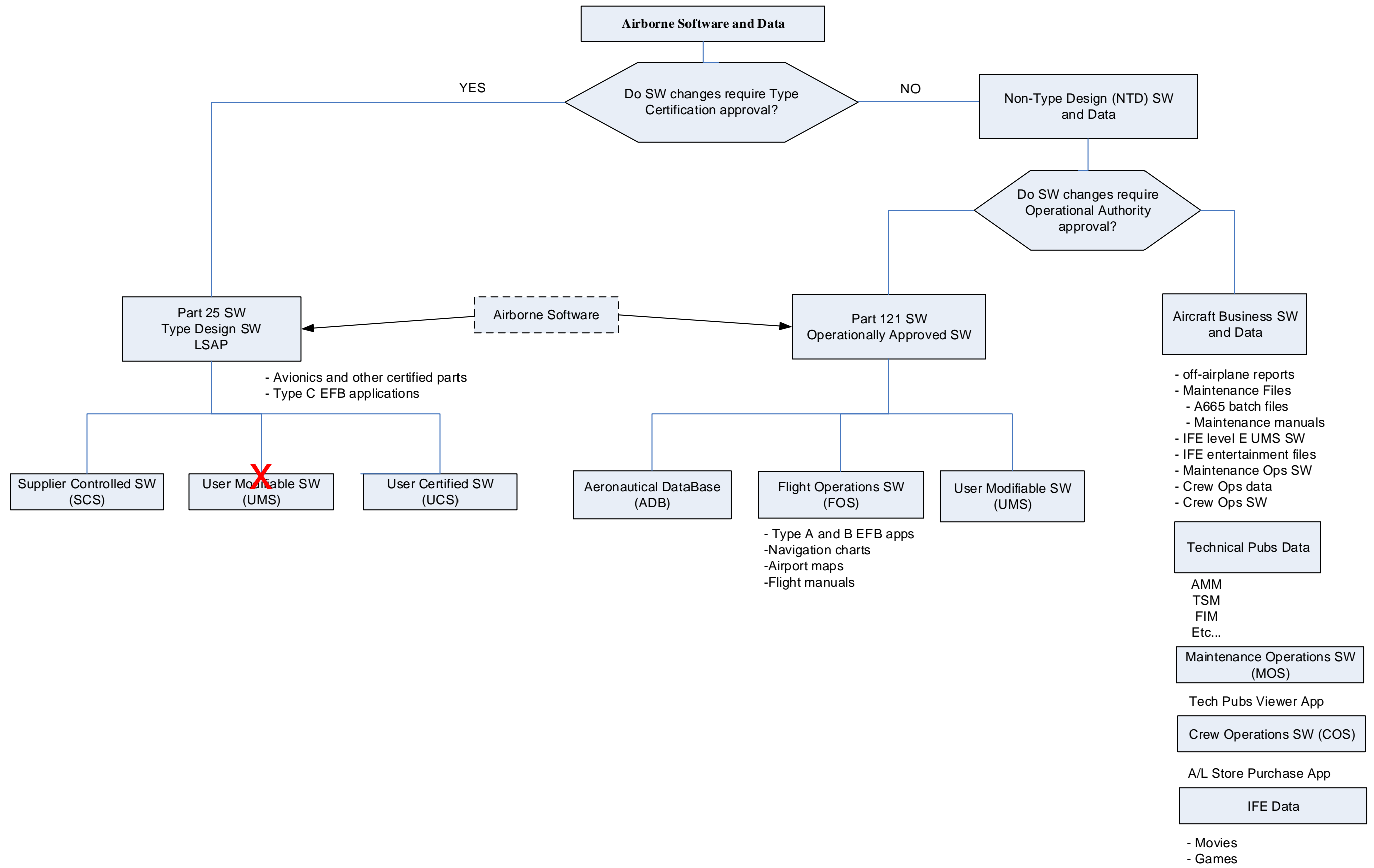
Some key things here. I broke out the major top classifications based on what approval is required to make SW changes based on much simpler questions. We are trying to focus on airline management processes in ARINC 667 so this does not try to define how software is initially certified or handled by airframers. For example UMS software must be initially certified along with other LSAPs but changes to UMS don't require any type cert approval.

My proposal has three major classes.

- Part 25 (changes require type cert approval)
- Part 121 (changes require operational approval)
- Aircraft Support (or Business) Data (no approval required).

Also you will see that page 1 focuses only on software/data management classes. Page 2 focuses on SW CM (airplane vs. hardware controlled) and loadability. Page 3 shows how the trees are really just a way of defining software/data attributes. A given software/data item can go through both trees to determine its attributes. We could eliminate the trees and just define various software/data attributes but I do think the visual trees still provide value now that they are simpler.

Determining the Software Classification

Airborne Software and Data

Do SW changes require Type Certification approval?

YES ——→ | NO ——→

Non-Type Design (NTD) SW and Data

Do SW changes require Operational Authority approval?

Part 25 SW
Type Design SW
LSAP

Airborne Software

Part 121 SW
Operationally Approved SW

Aircraft Business SW and Data

- Avionics and other certified parts
- Type C EFB applications

Supplier Controlled SW (SCS)

User Modifiable SW (UMS)

X

User Certified SW (UCS)

Aeronautical DataBase (ADB)

Flight Operations SW (FOS)

User Modifiable SW (UMS)

- Type A and B EFB apps
-Navigation charts
-Airport maps
-Flight manuals

- off-airplane reports
- Maintenance Files
   - A665 batch files
   - Maintenance manuals
- IFE level E UMS SW
- IFE entertainment files
- Maintenance Ops SW
- Crew Ops data
- Crew Ops SW

Technical Pubs Data

AMM
TSM
FIM
Etc...

Maintenance Operations SW (MOS)

Tech Pubs Viewer App

Crew Operations SW (COS)

A/L Store Purchase App

IFE Data

- Movies
- Games

Determining SW Loadability and CM

Airborne Software

These terms apply to Part 25 and Part 121 SW

Is the A/C installation of SW controlled by the hardware part?

NO → Aircraft Controlled SW (ACS)

YES → HW Controlled SW (HCS)

Is the SW loadable?

YES → Aircraft Controlled Loadable SW Part (ACLSP)

NO → Not possible

Loadable SW Part (LSP)

Is the SW loadable ?

YES → Hardware Controlled Loadable SW Part (HCLSP)

NO → Resident SW (RS)
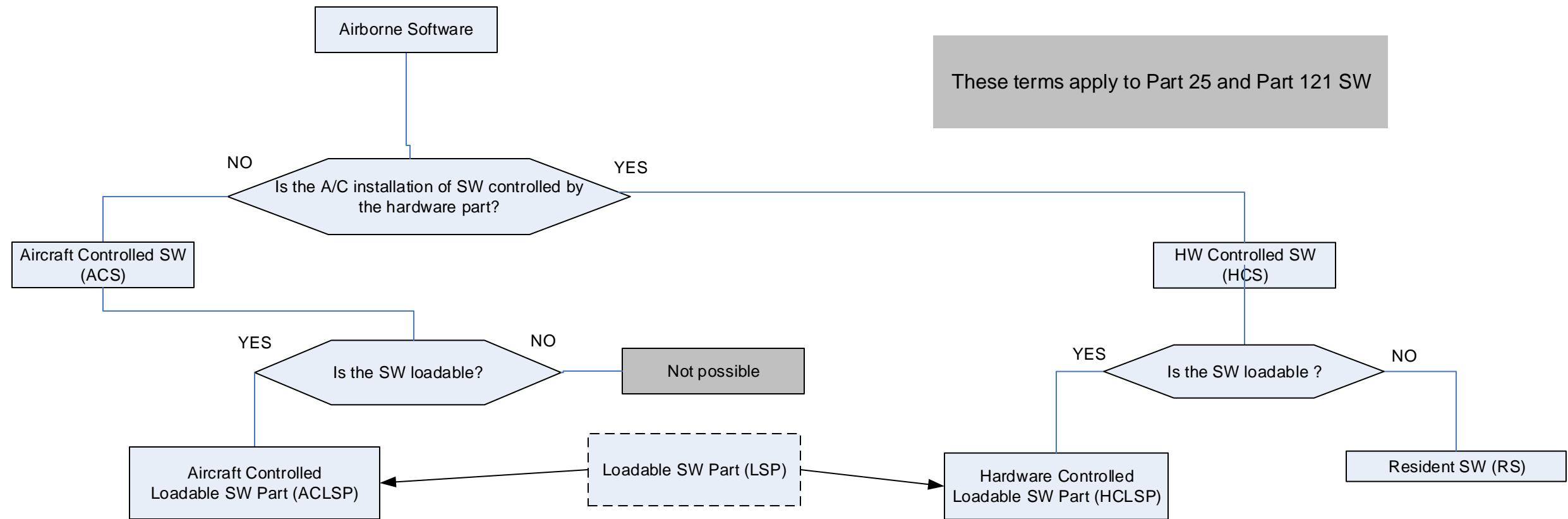
Going through both trees determines attributes for SW and data

SW part 1	SW part 2	SW part 3	SW part 3	SW ID 4	SW ID 5	Data ID 5
Part 25	Part 25	NTD	NTD	NTD	NTD	NTD
		Part 121	Part 121	ASD	ASD	ASD
ACS	HCS	ACS	ACS			
Loadable	Resident	Loadable	Loadable			
OPC	SCS	FOS	UMS	MOS	Level E UMS	Tech Pub

All Loadable ACS is ACLSP (also synonomous with FLS)
All part 25 Loadable ACS is LSAP
All loadable HCS is HCLSP
All loadable SW is LSP
All part 25 and Part 121 SW is Airborne SW

In other words the trees could be eliminated and we could just define attributes and definitions

;
Make this an Excel table