

Friends/Partners in Aviation Weather

Segment Three

Legacy System Conversion

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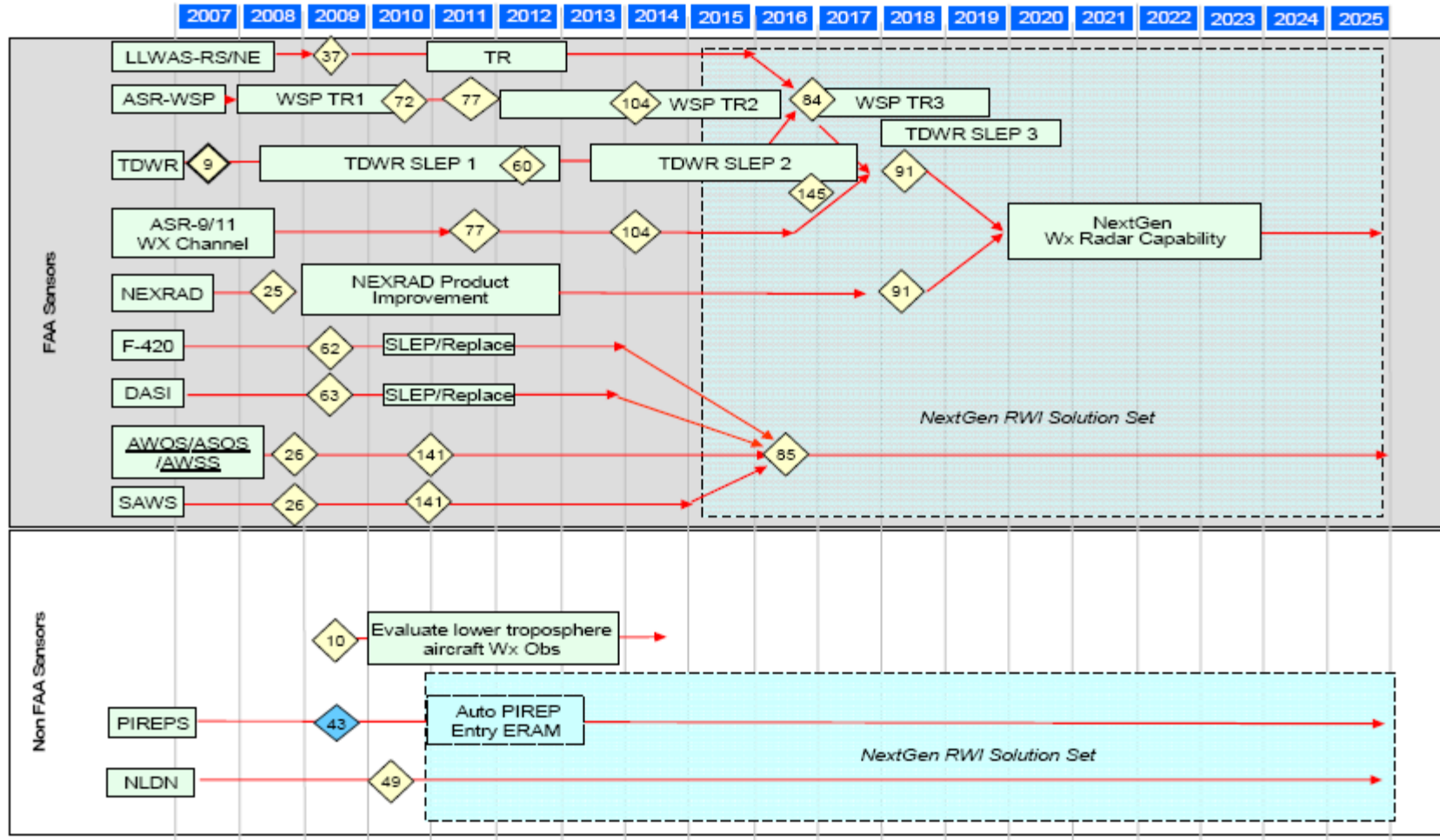


Legacy Systems

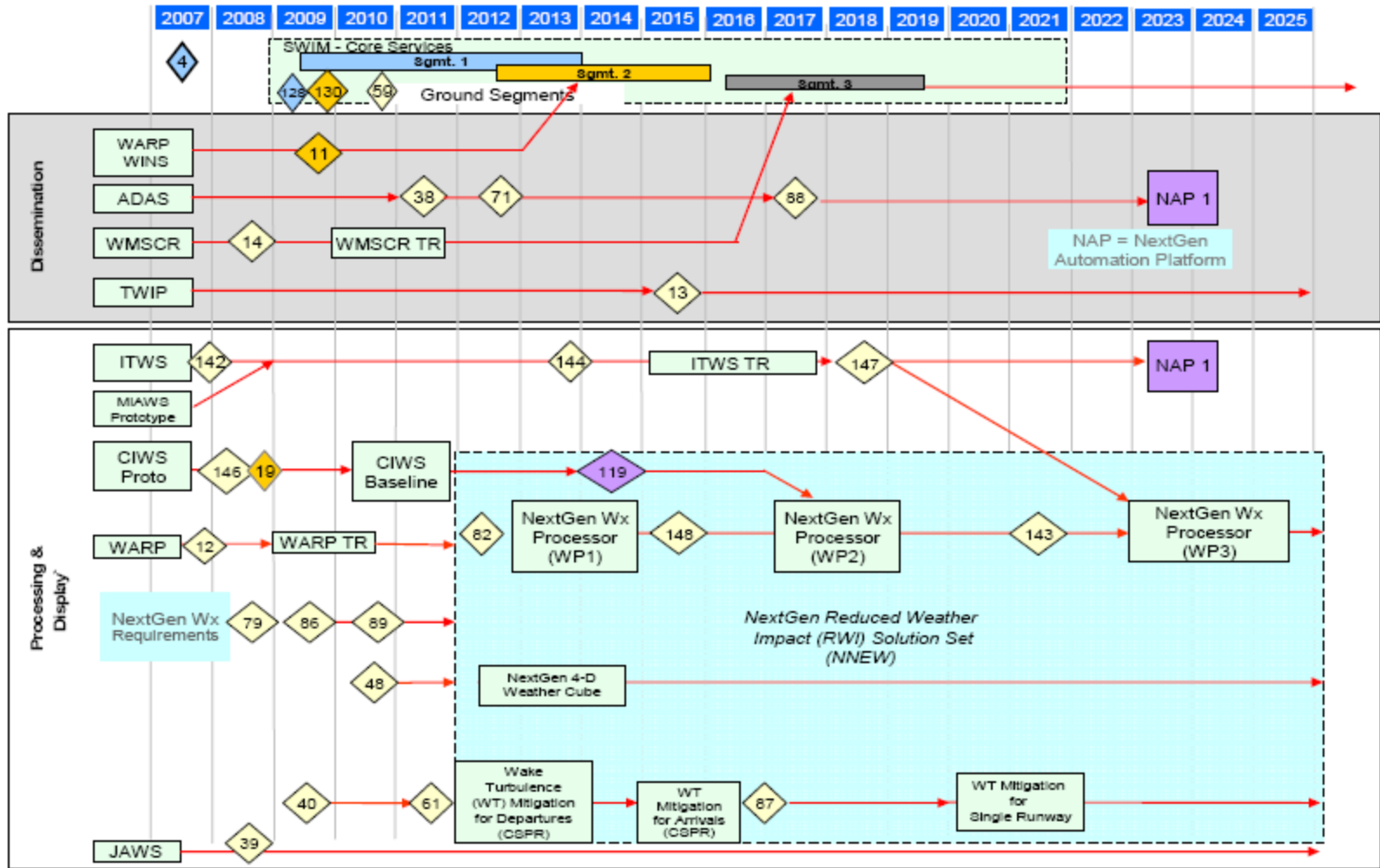
- Legacy systems often start out as state of the art
- Legacy systems exist for good reasons – to meet identified requirements
- They become obsolete:
 - Requirements change
 - New technology offers advantages
 - Constraints change
 - Legacy technology doesn't get the job done



Observations Roadmap



Forecasts Roadmap



Date: November 8, 2007 Version 1.9g



Why Convert FAA Legacy Systems

- Right-size aviation weather observations suite
- Consolidate processor systems architecture
- Meet NextGen and SWIM requirements
- Implement a Service-Oriented Architecture (SOA) in the NAS
- Lower information costs
- Increase weather information access efficiency
- Increase common situational awareness
- Increase NAS agility



NextGen Recommendation

The JPDO identified these gaps and overlaps:

- Align requirements against a common baseline
- Develop a 4D cube to increase information access
- Develop interoperable weather products, across agencies and air traffic domains
- Integrate and automate weather information into NAS operations



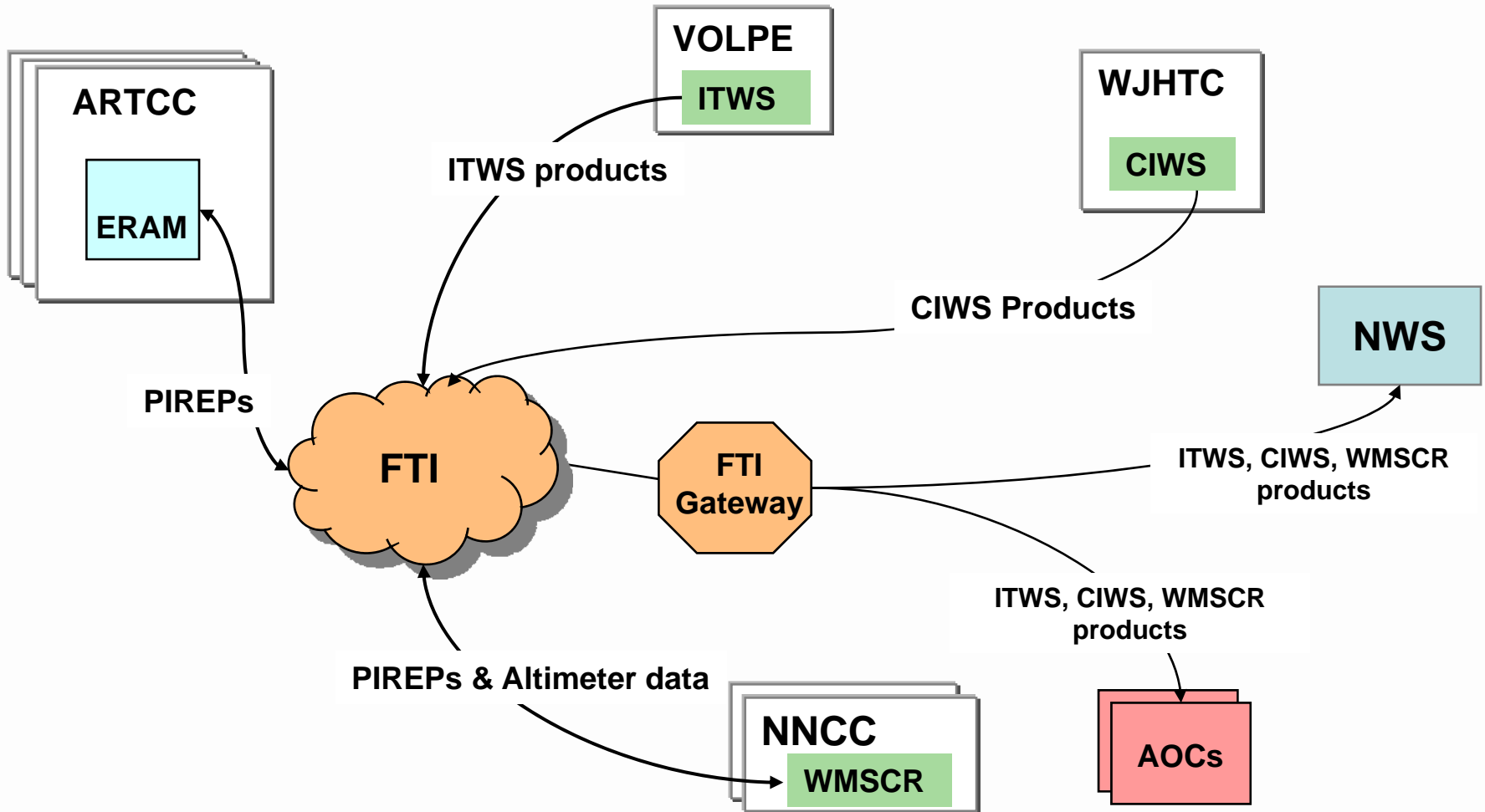
Backup Slides



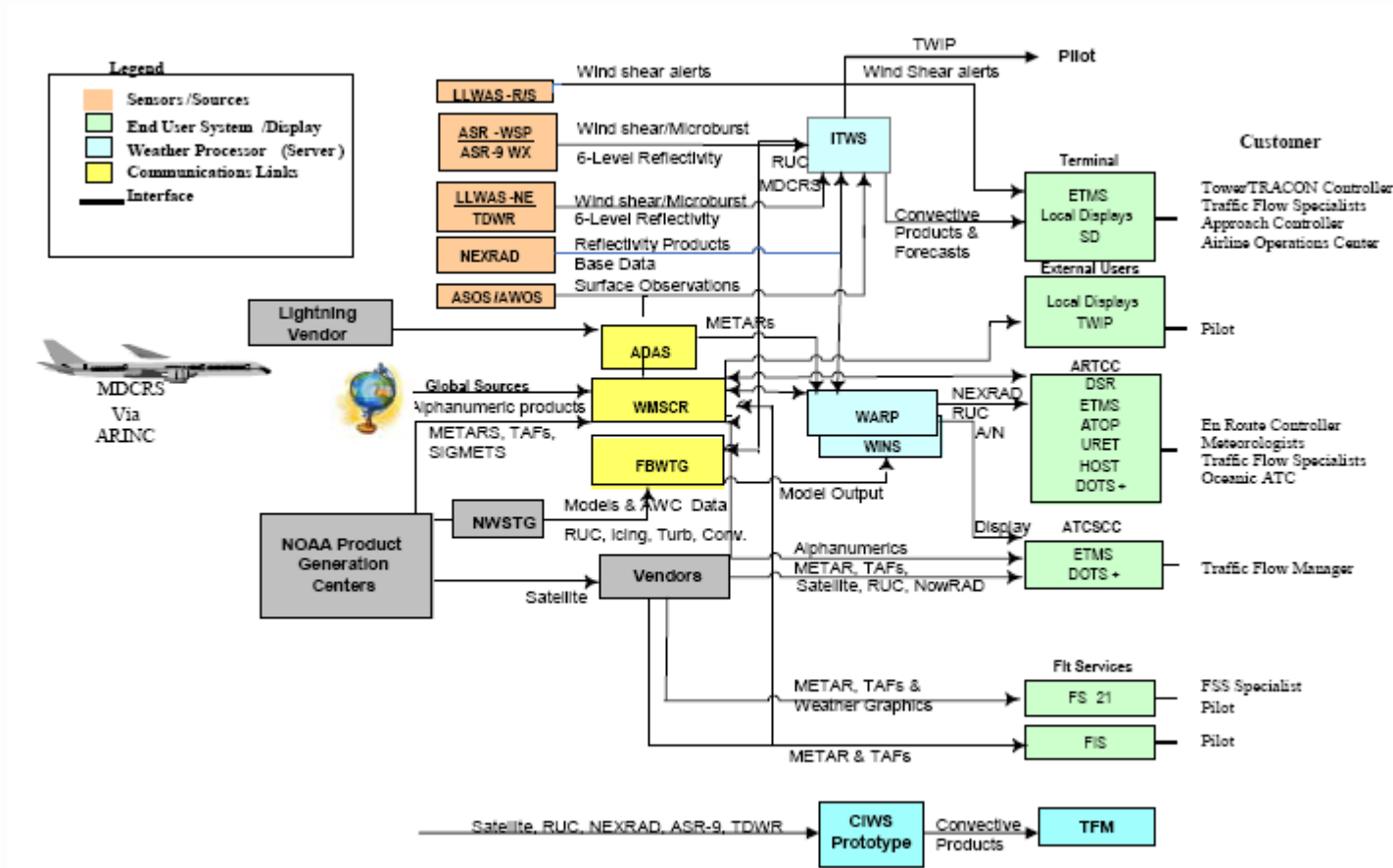
- We cannot adopt the way of living that was satisfactory a hundred years ago. The world in which we live has changed, and we must change with it
- Technology and requirements of NextGen are outstripping our legacy capabilities at Warp speed.



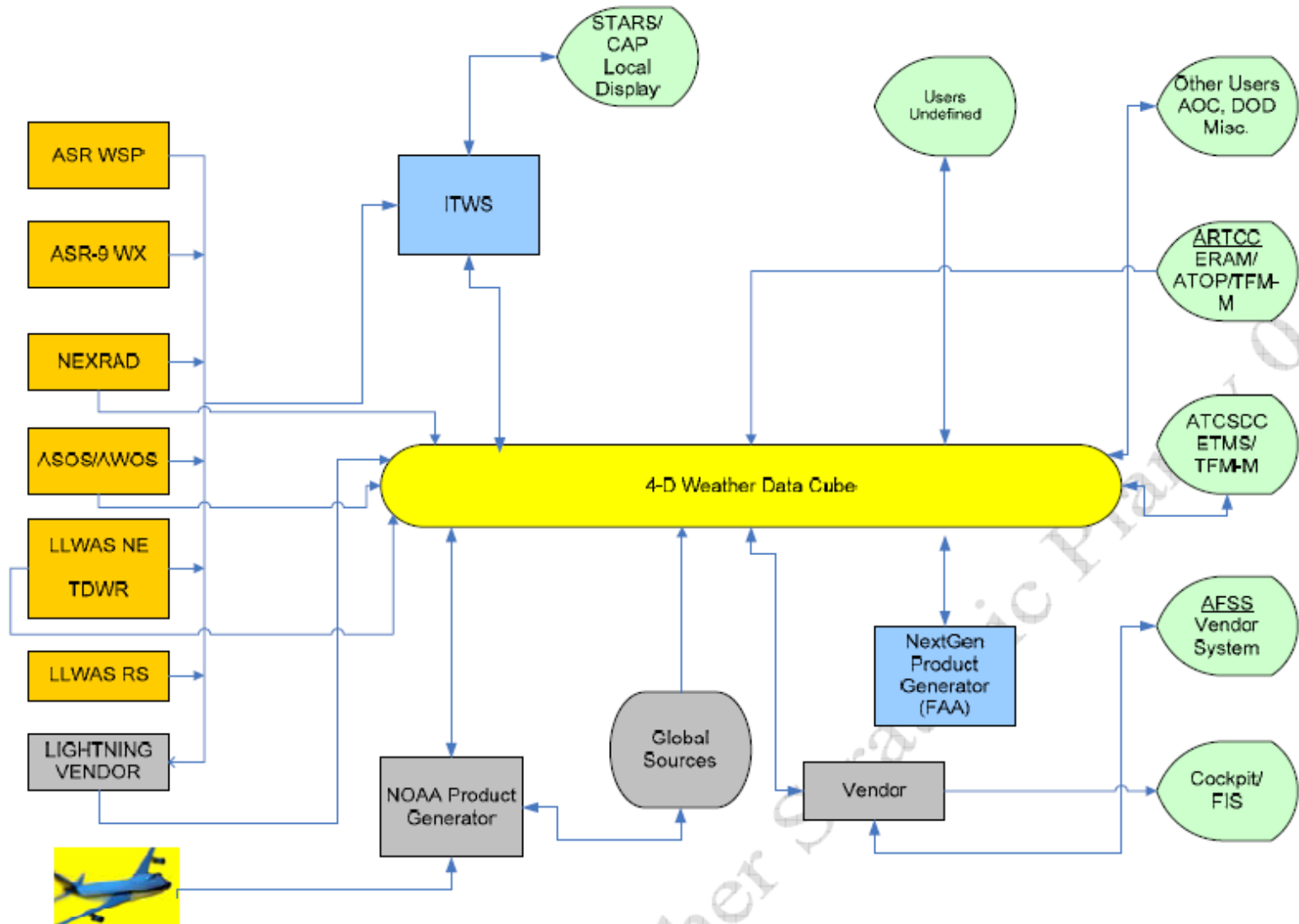
Weather COI



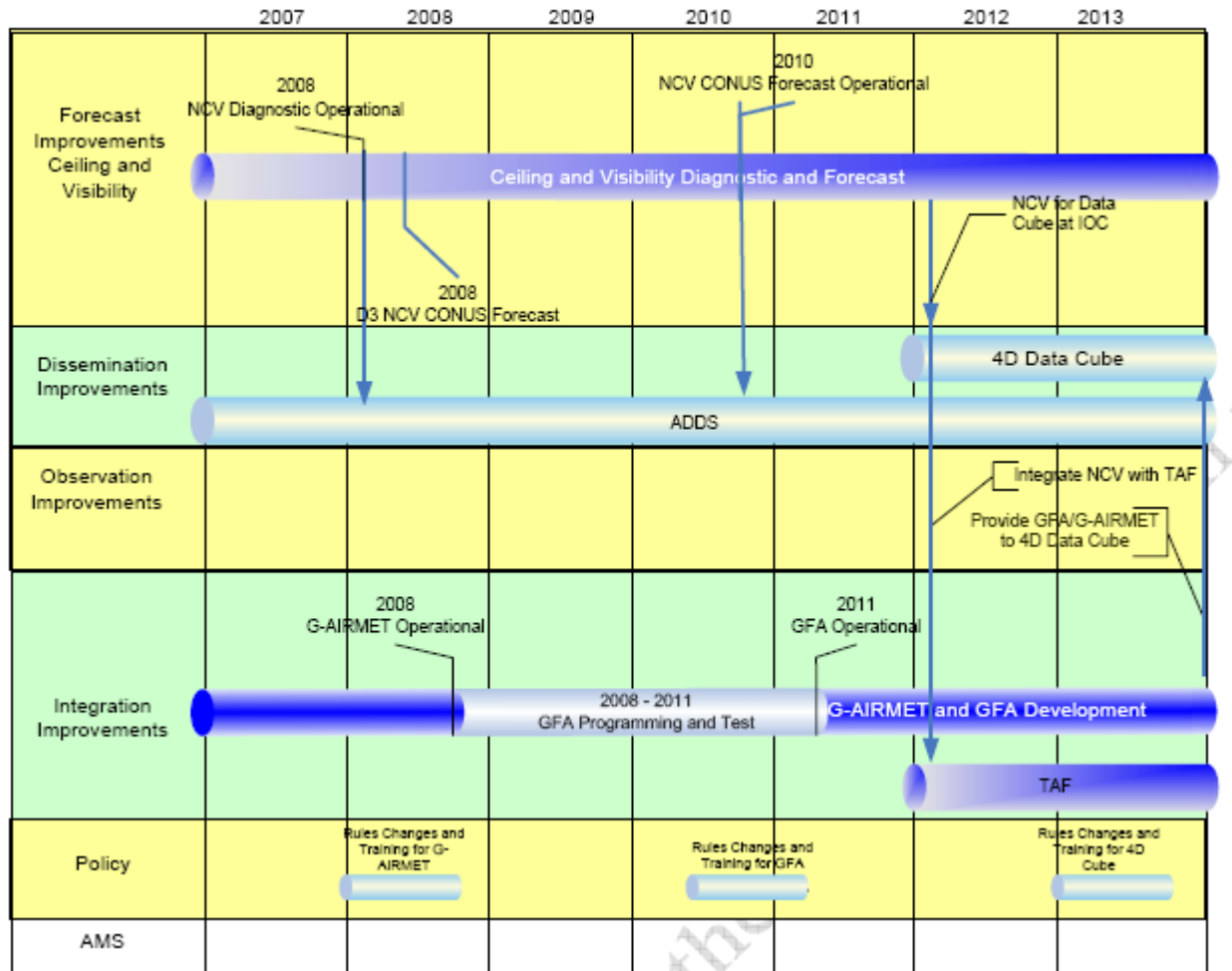
Today's Weather Architecture



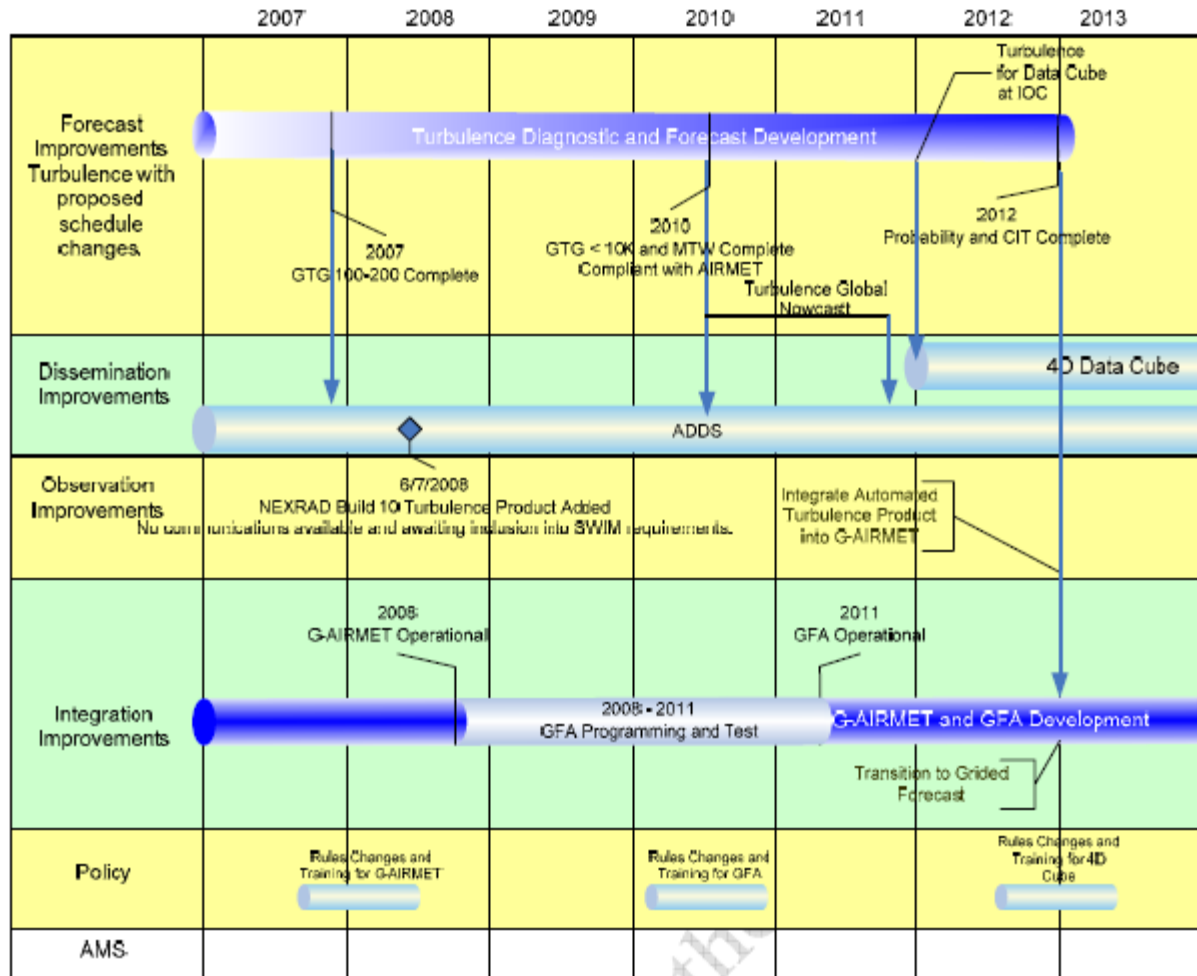
NextGen Architecture circa 2015



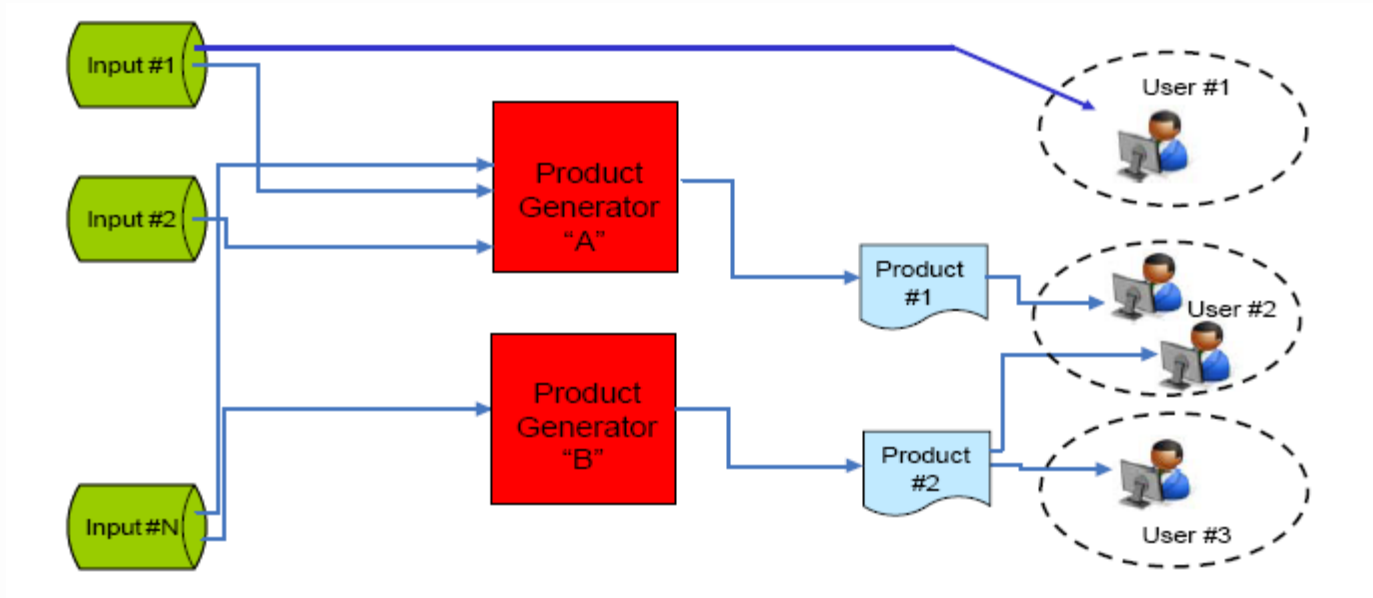
C&V Transition



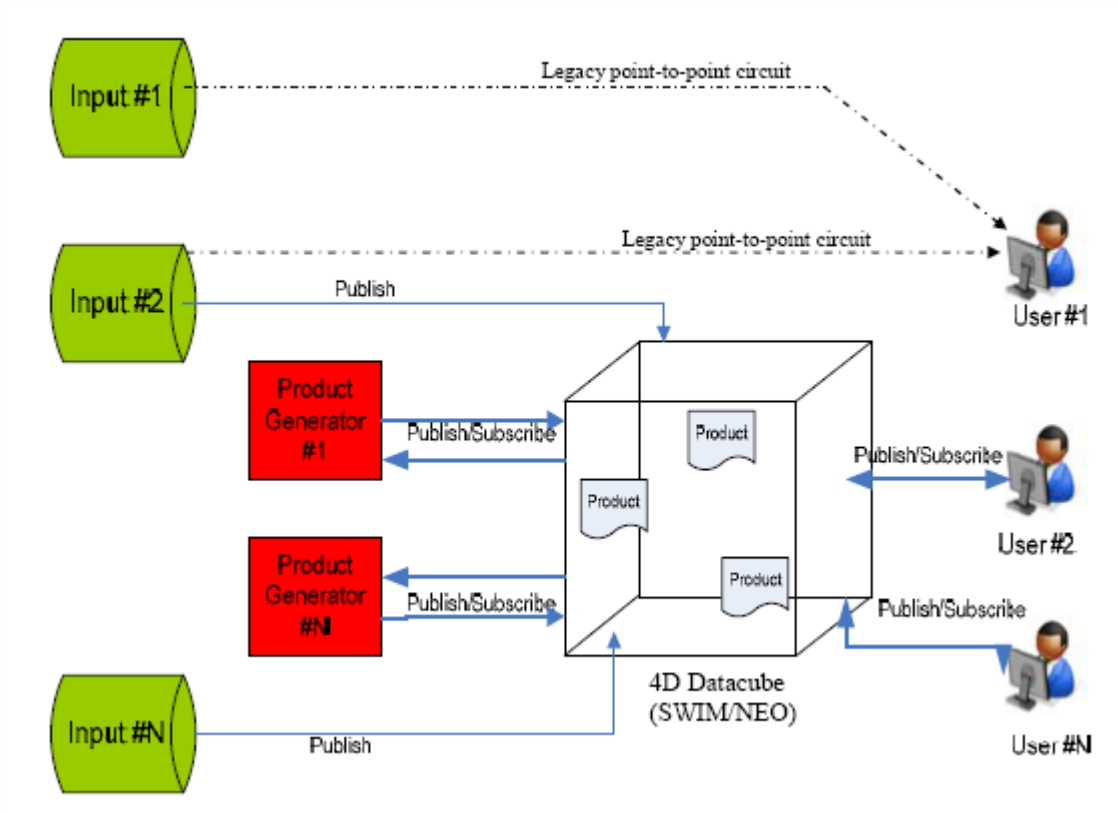
Turbulence Roadmap



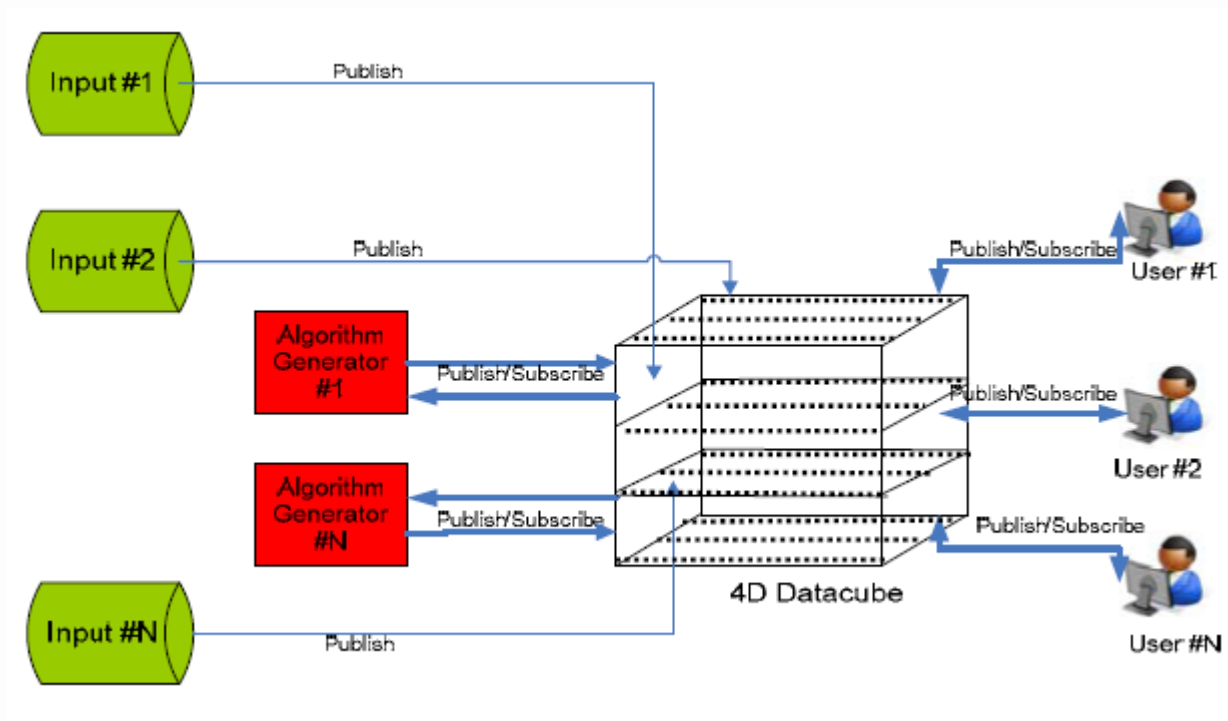
Legacy Architecture



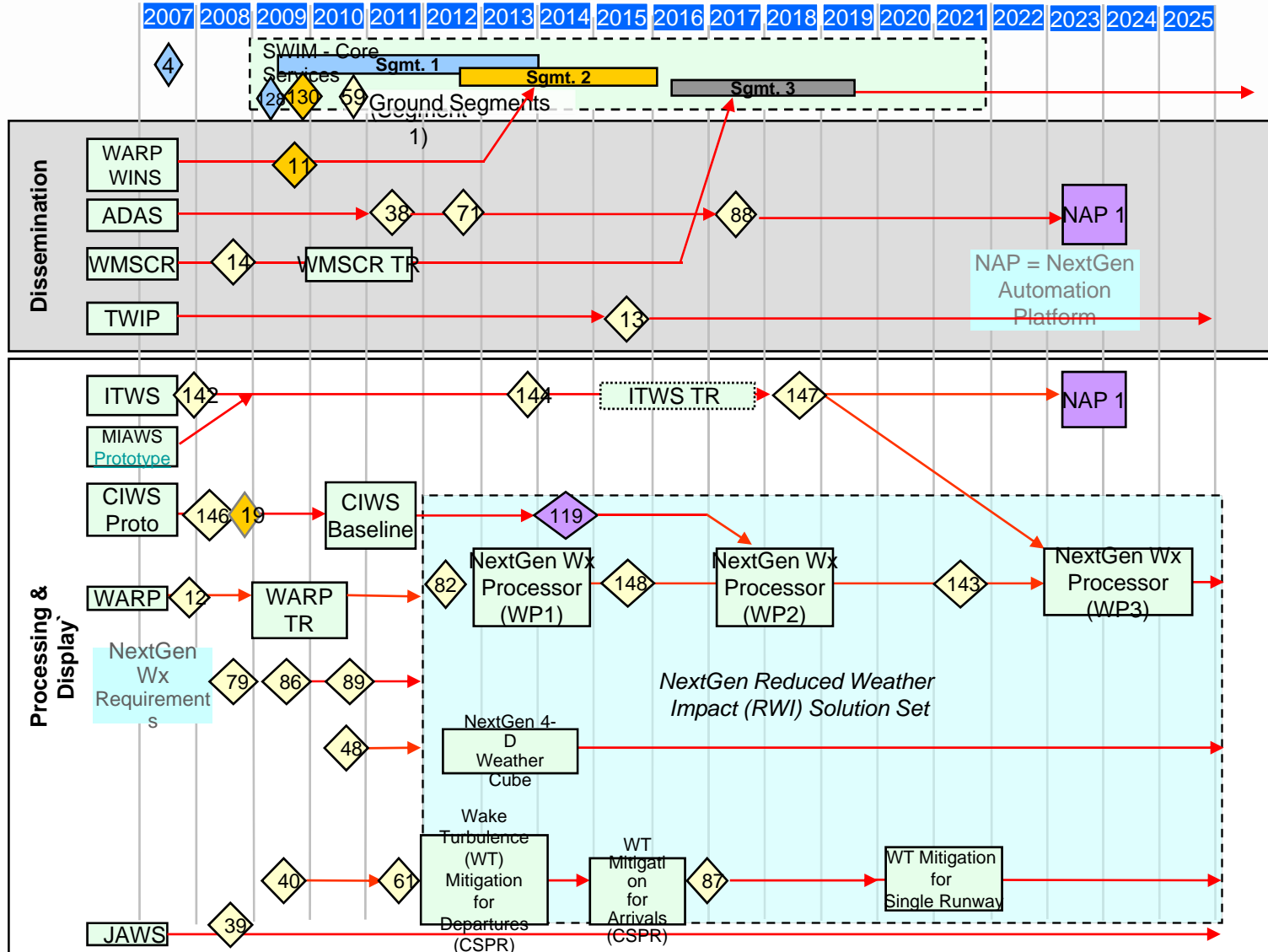
NNEW IOC Architecture



NNEW FOC Architecture



Weather Roadmap



Definition of Program

Comparison of WSP, ITWS, WARP and CIWS

Product Generation Capability						Dissemination				
	WSP	ITWS	WARP	CIWS		WSP	ITWS ¹	WARP	CIWS	
Current					ARTCCs		17/18	21	8	
Hi Res VIL Mosaic/Update Rate		2.5 min		2.5 min	TMU		X	X	X	
ASR precip (or Mosaic)/Update Rate	.5 min	.5 min		1.0 min	CWSU		X	X	X	
Layered/base/point/Comp Refl Mosaics			X		Area sup			X	X	
Mosaic (# Nexrad/TDWR/Canadian)		3/4	37/0	60/11/7	Controller			X		
ASR precip or Mosaic (# ASR)	1	12	0	31	ATCCSCC		Web	X	Web/SDs	
National coverage (# NEXRAD, ASR/TDWR) ³				134/132/44	TRACONS	34	25/37	0	6	
Mosaic Spatial Resolution		1km	2-4km	1km	TMU	X	X		X	
Echo Tops		Hi Res	X	Hi res	Controller	X	X			
Lightning		X	X	X	Towers	34	37/49	0	0	
Satellite			X	X	Sup	X	X			
Storm Motion/Extrap Position/SCI	X	X/X/X		X/X/X	Controller	X	X			
Convective wx Forecast		1hr	Note 2	2hr	Pilot	TWIP	TWIP			
Winter Weather		X		X	Ext Users		Web		Web/SDs	
Winter Precipitation Phase				X	NAS			WINS e.g.		
Forecast Scoring		X		X				URET		
Growth and Decay /Storm Initiation				X				CRCT		
Echo TopsForecast				X	AWIPS			X		
Wind/Wind shear		X			SWIM (planned)		X	X	X	
Runway Alerts/Warnings	X	X			NAVCANADA				X	
Terminal Winds		X								
Airport winds	X	X								
Input Interfaces	LLWAS	NEXRAD	TDWR	ASR-9	ASR-11	Light/ASOS	Satellite	Model	MDCRS	WMSCR
WSP	X			X		X ⁵				
ITWS	X	X	X	X	X	(ADAS)		(FBWTG)	(FBWTG)	
WARP		X				(ADAS)	X	(FBWTG)		X
CIWS	X	X ⁴	X	X		X	X	X		
¹ # of facilities-22 sites/34 sites										
² Acquires NCWF										
³ # of radars for proposed National Coverage										
⁴ Includes Canadian long range radars										
⁵ ASOS but no lightning										

