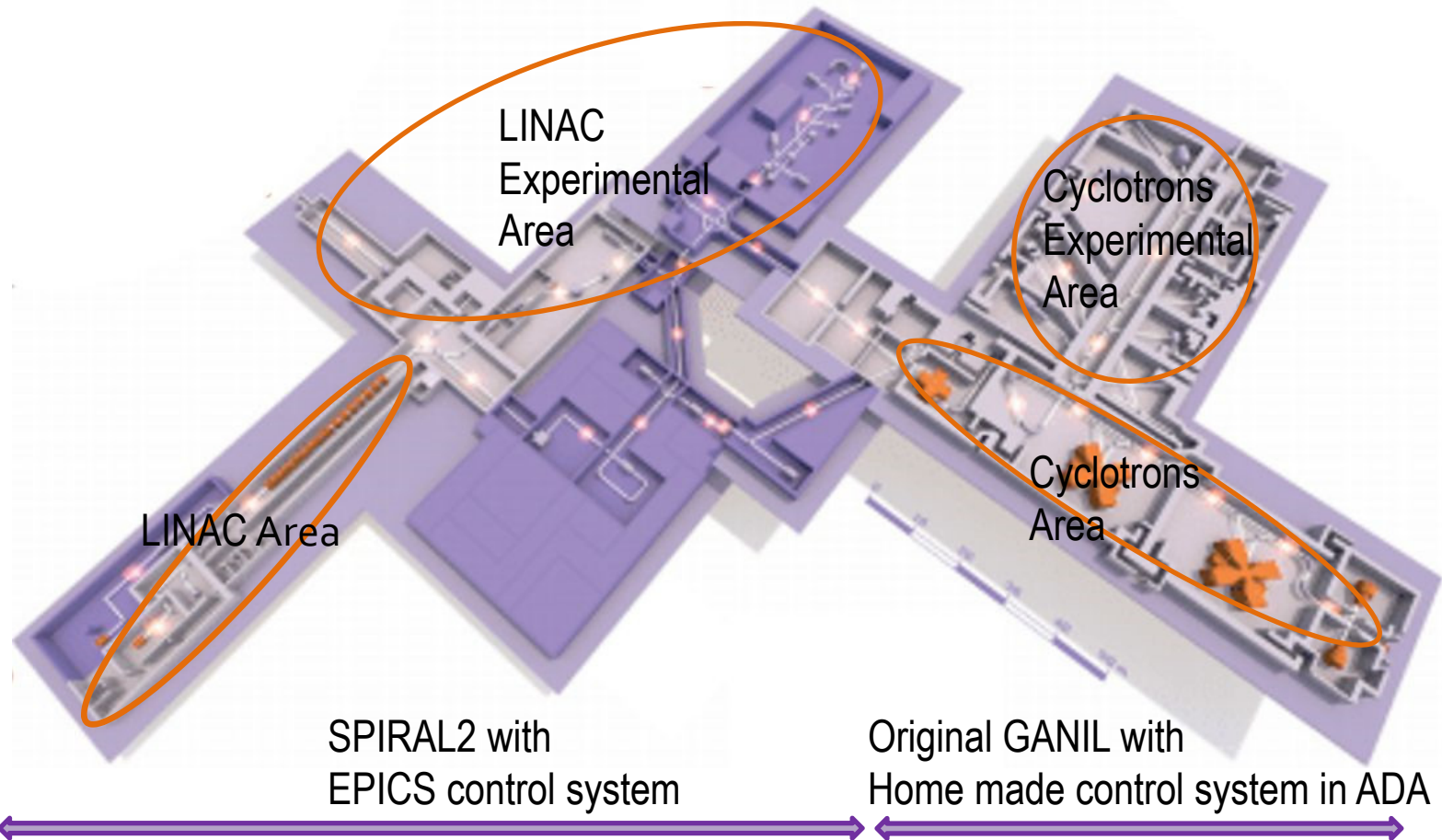
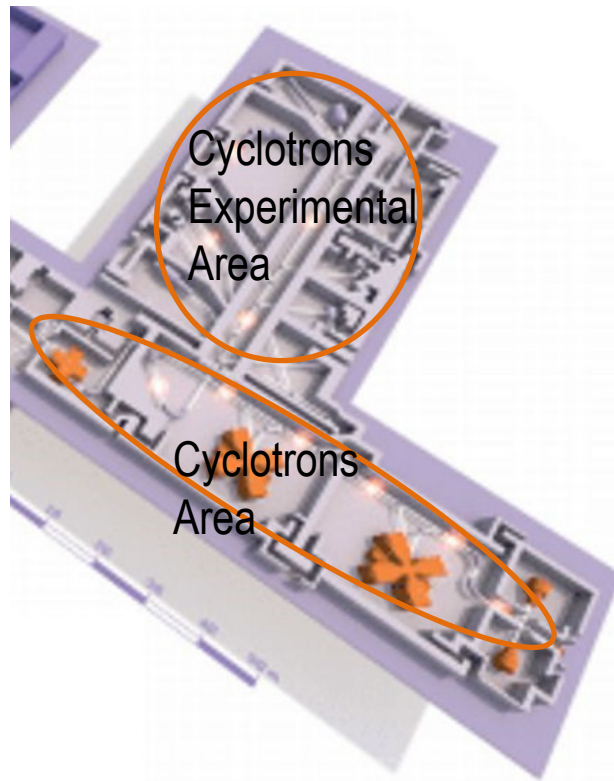




HOW GANIL PLAN TO USE WEB TECHNOLOGIES TO UPDATE THE CONTROL SYSTEM USER INTERFACE

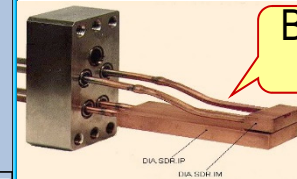




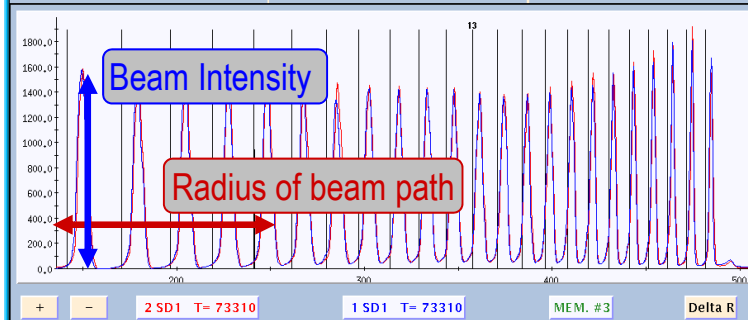
Original GANIL with home made control system in ADA

Quitter	Sonde	Options	Imprimer	Sortir sonde	Purger	?
C02 SD1		Pos SD1 650.0 mm				
Rayon Init	136.0 mm	Tension actuelle 73310 V				
Rayon Final	649.9 mm	tension				
Acquisition						

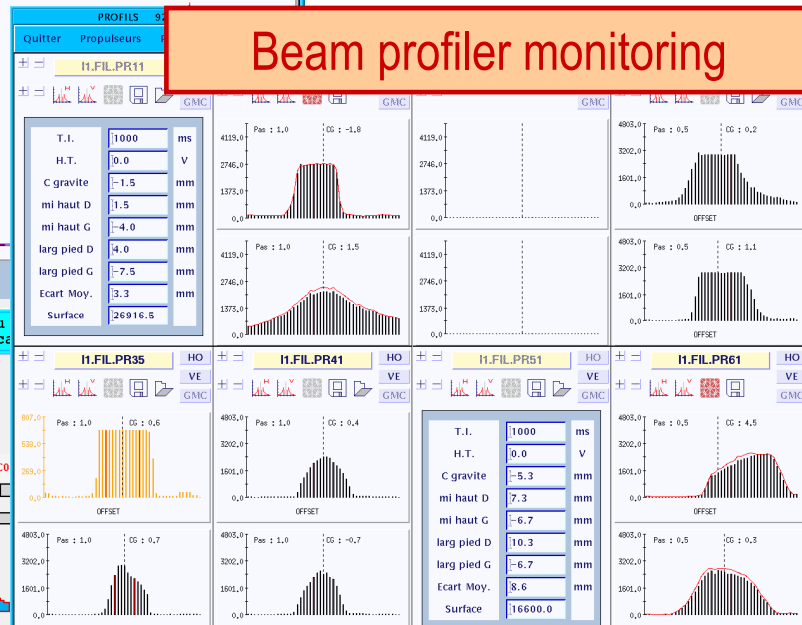
Beam path monitoring in a Cyclotron



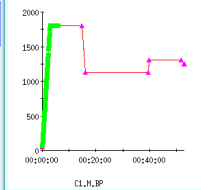
Beam position probe



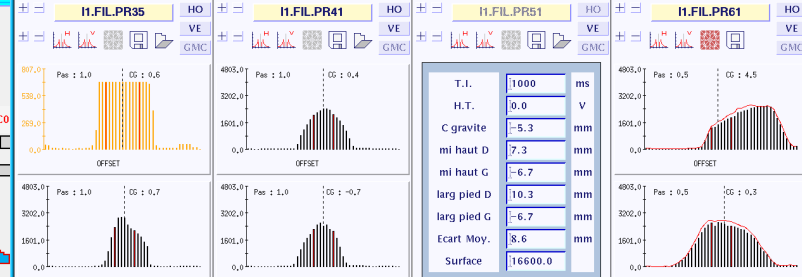
Beam profiler monitoring



Mise a valeur des Cyclotrons en ligne

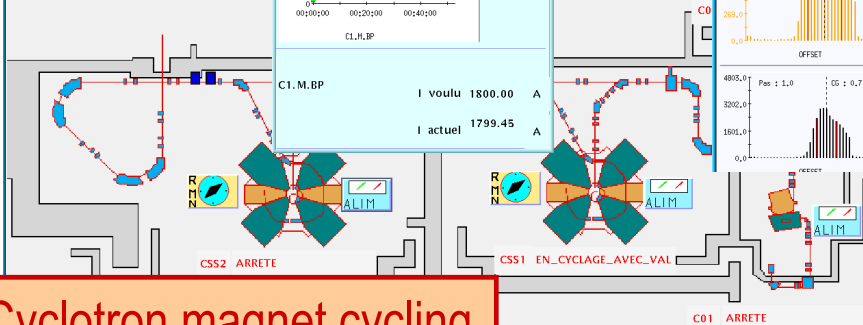


Mise a valeur du cyclotron en loc

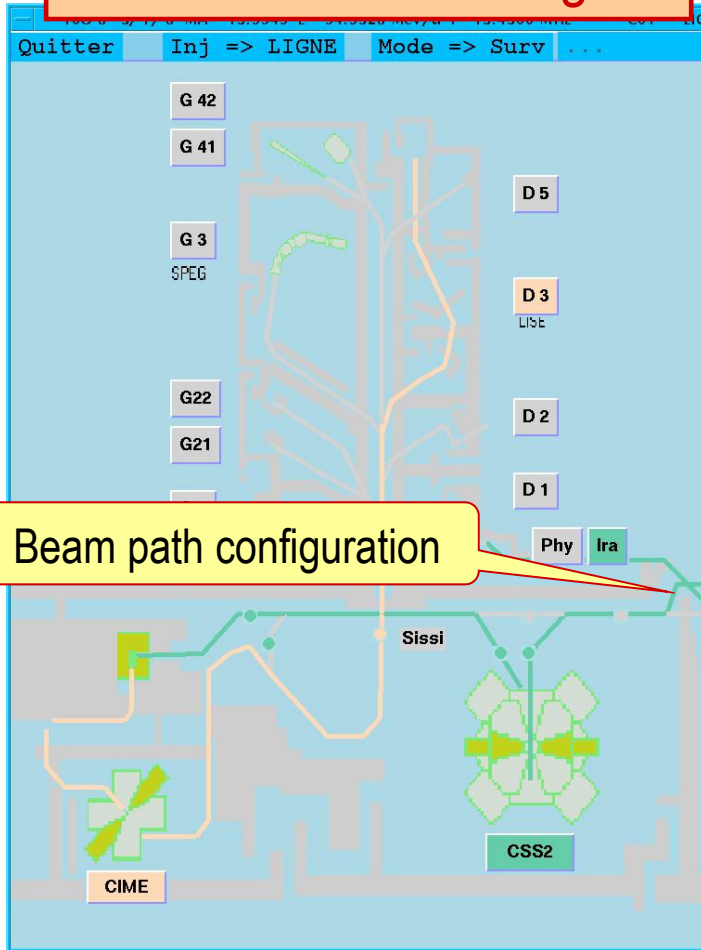


Beam profiler probe

Cyclotron magnet cycling



Parameters setting



Beam path configuration

180 8 4/7/8 MA~ 17.9992 E~ 63.0965 MeV/u F~ 11.2250 Mhz C01 LIGNE SURVEILLANCE 01-AUG-1997 09:34:46.69

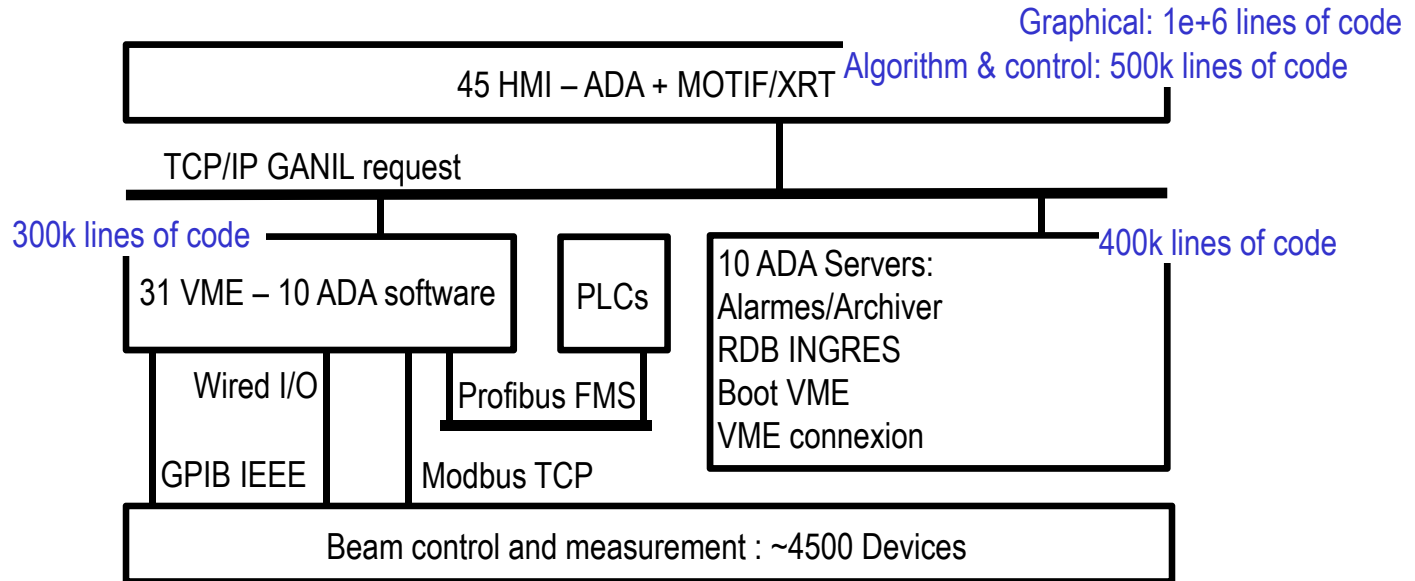
Quitter Injecteur Fonction Faisceau SISSI (EN)

ALPHA **C01_CSS2**

LECTURE DES VALEURS THEORIQUES 01-AUG-1997 09:48:06.57

OBJET	NOM	THEORIQUE	DATE	DEFAULT
L2_Q65	L2.G.Q65	25.482	20-jul-1997 14:58:49	
L2_Q65	L2.Q65_G	-2.136		
L2_TI64	L2.TI64	0.000		VALEUR INCONNUE
L2_Q66	L2.G.Q66	36.787	20-jul-1997 14:58:49	
L2_Q66	L2.Q66_G	-1.991		
L2_Q67	L2.G.Q67	31.000		
L2_Q67	L2.Q67_G	0.000		
L2_DC64_HO	L2.DC64_HO	0.000		
L2_DC64_VE	L2.DC64_VE	0.000		
CSS2	BRO= 0.99908 STANDARD SISSI			
C2_FAIS_IN	C2.BRO_IN	0.000		
	C2.W_IN	9.000		
	C2.ION_A_IN	18.000		
	C2.ION_AM_IN	0.000		
	C2.ION_Q_IN	0.000		
	C2.ION_2_IN	0.000		
C2_M11_COV	C2.M11_COV	147.000		
L2_DC65_VE	L2.DC65_VE	0.000		
C2_M12_COV	C2.M12_COV	2065.673	17-jul-1997 07:18:15	
C2_M13_COV	C2.M13_COV	-66.804	17-jul-1997 07:18:15	
C2_M14_COV	C2.M14_COV	283.248	17-jul-1997 07:18:15	
C2_INF_V	C2.INF_V	57194.816	17-jul-1997 07:18:15	
C2_INF_POS1	C2.INF_POS1	2.853	17-jul-1997 07:18:15	
C2_INF_POS2	C2.INF_POS2	2.853	17-jul-1997 07:18:15	
C2_HF	C2.HFS_V	125141.781		
	C2.HFS_PHASE	0.000		VALEUR INCONNUE
	C2.HFN_V	125141.781		
	C2.HFN_PHASE	0.000		VALEUR INCONNUE
	C2.HF_FREQ	0.000		
C2	C2.DBDI	7.529	17-jul-1997 07:18:15	
	C2.HARM	2.000		

Beam tuning parameters read from RDB and write to devices



→ Total of 2.7e+6 lines of ADA code

45 HMI – ADA + MOTIF/XRT

In 2023 we will celebrate the 40th anniversary of the first beam at GANIL

UPDATE motivations:

GANIL cyclotrons are expected to remain operational for at least the next 20 years

❑ => Suppress obsolescence risk with MOTIF & XRT technology

Limited human resources and lack of ADA Skilled people

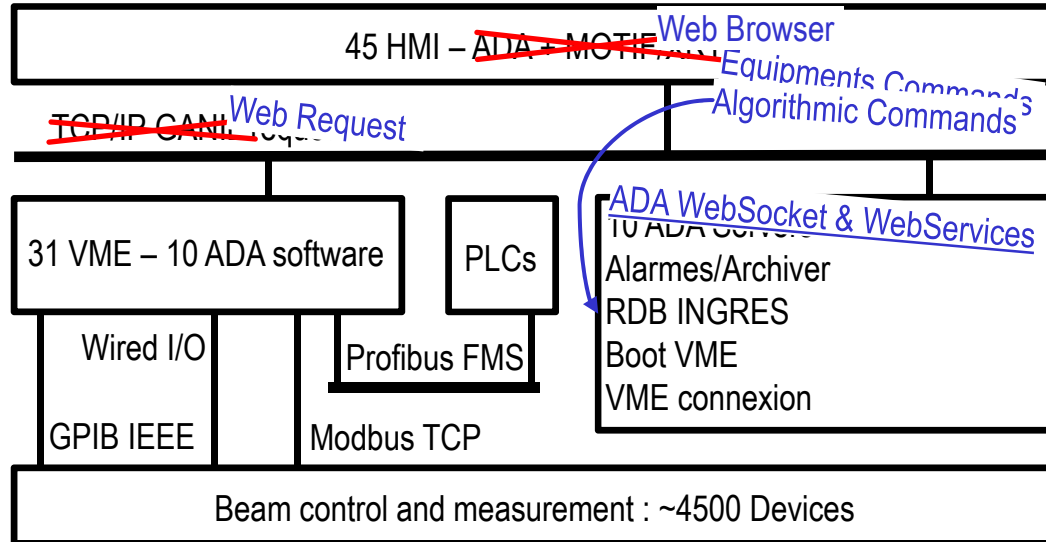
❑ => Ease outsourcing

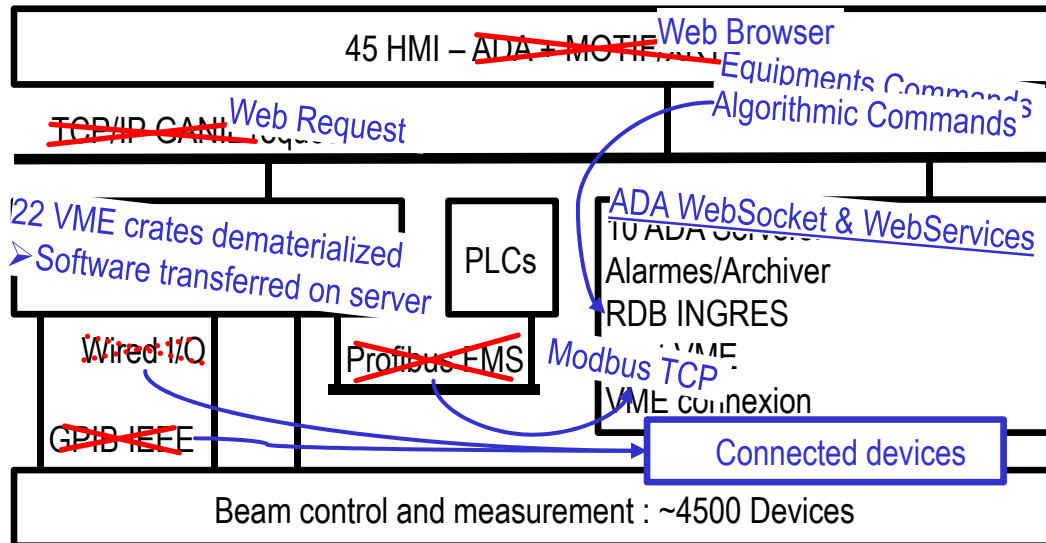
❑ => reduce ADA Code, keep only the most valuable not related graphical

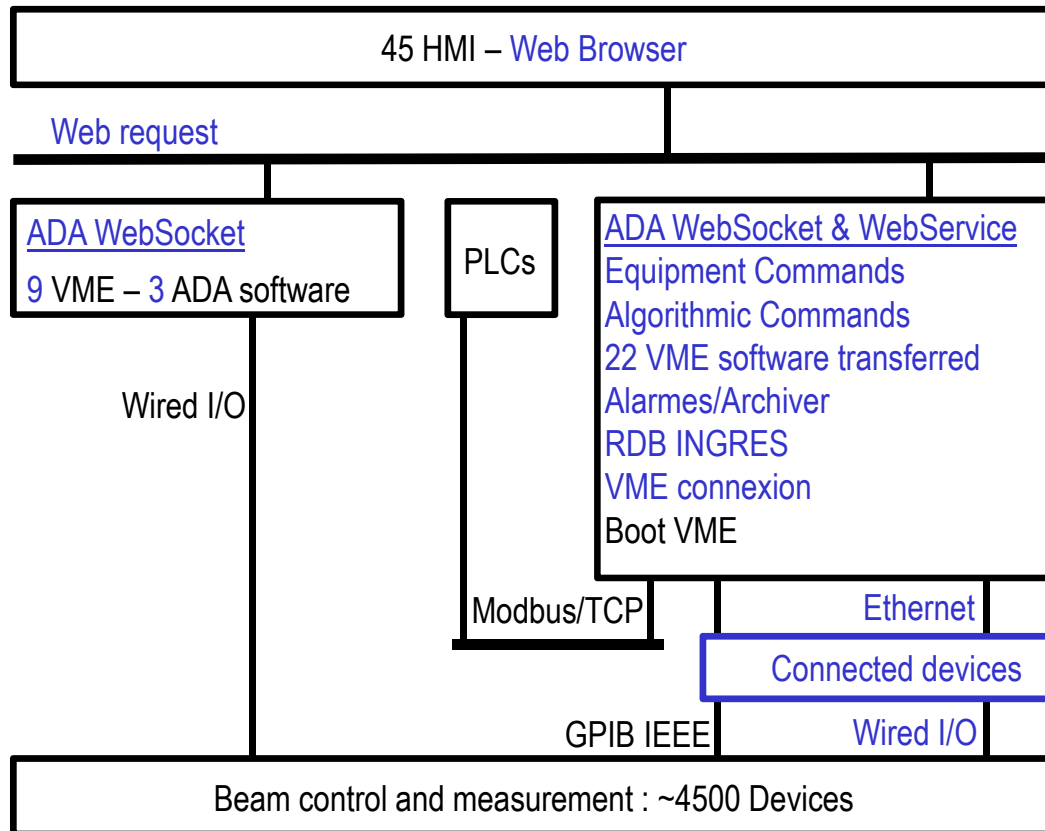
➔ Use Web technology to replace MOTIF/XRT and graphical ADA code (- 1e+6 lines of code)

❑ => Ease maintenance

➔ Dematerialize VME, use of TCP/IP protocols and connected I/O devices







RENOVATION GOALS:

- ☑ MOTIF & XRT technology suppressed
- ☑ easier outsourcing with Web technologies
- ☑ reduce ADA Code at least => 1e+6 lines of code replaced
- ☑ easier maintenance with 22/31 VME dematerialized

- Planning: 2023 preparatory phase, 2024-2027 development
- Human resources Estimation:
 - ◆ 5 men.year for VME dematerialization
 - ◆ 7 men.year for MOTIF/XRT replacement
- Strategy
 - ◆ VME dematerialization will be done crate by crate by GANIL, the work load will be smoothed all along the project
 - ◆ MOTIF/XRT replacement:
 - Existing code architecture is blurry and not well known/understood by GANIL people
 - Avoid many simultaneous changes
 - Step 1 Reorganize the code in 2 separated view/control layers + validation tests
 - Step 2 Switch view layer to Web technology
 - Code reorganization and view layer development with Web technology will be outsourced
 - GANIL resources will focus on code review and delivery validation
 - Anticipate a lot of Test & Validation slots with accelerator running

Thank you !