

U2 ROBOTICS

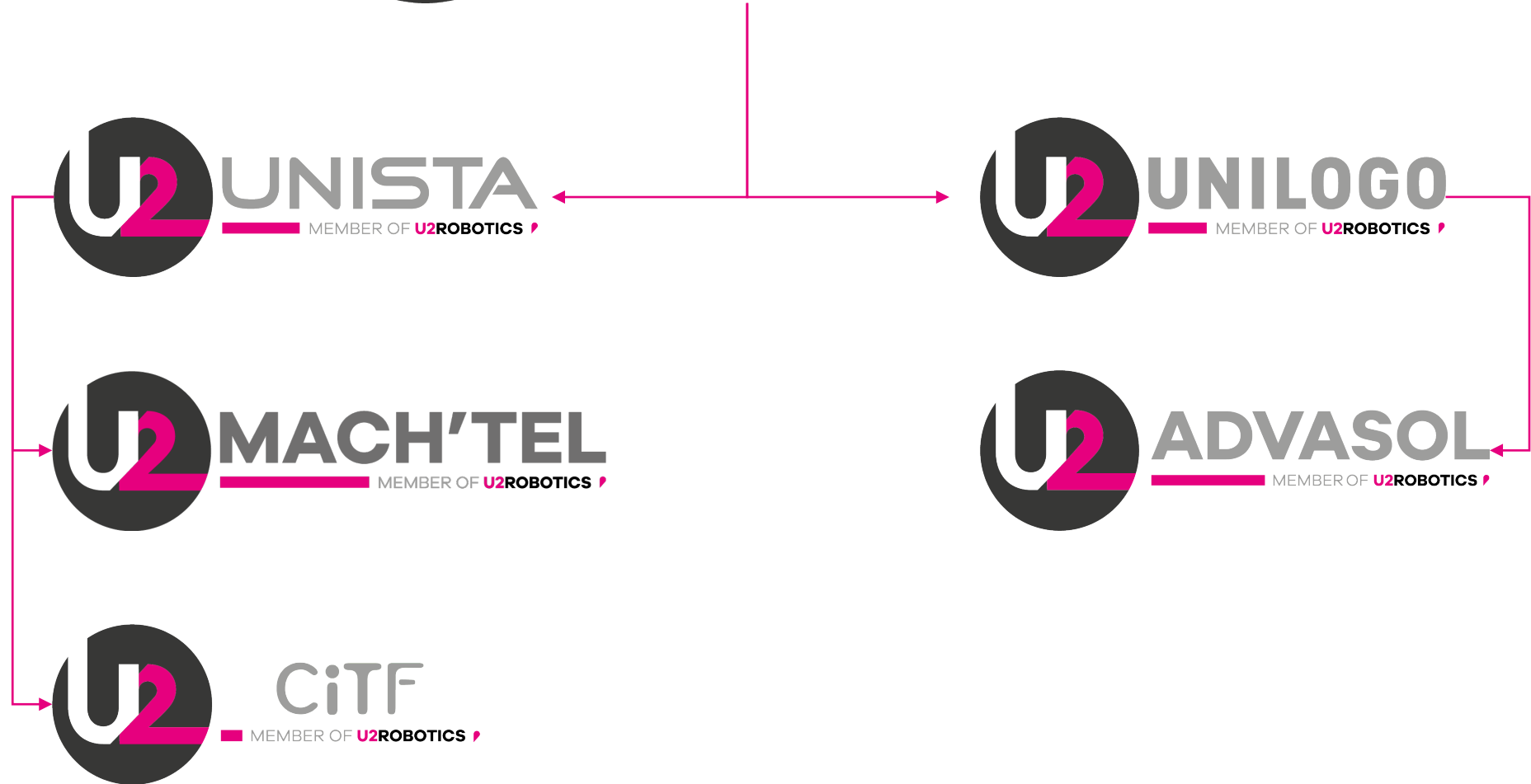
OPC UA Day

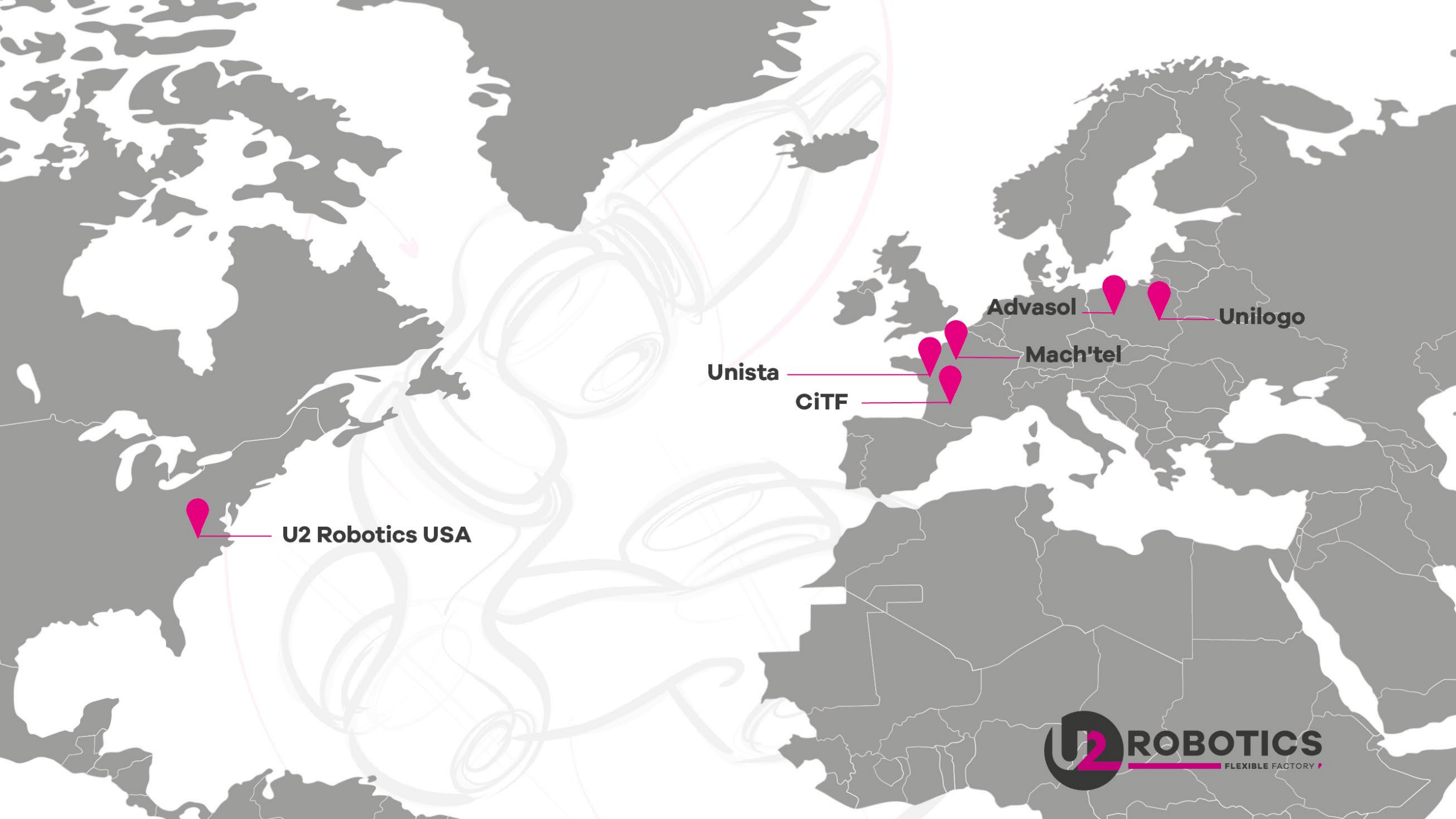
09/12/2022

01.

U2 ROBOTICS : QUI
SOMMES-NOUS ?







 **U2 Robotics USA**

Unista

CiTF

Advasol

Mach'tel

Unilogo

EN QUELQUES CHIFFRES...



+200 employés



Présent dans 45 pays



Industrie 4.0
Flexible et agile



35€ millions de CA en 2021

DES SECTEURS D'ACTIVITÉS VARIÉS



LET'S TALK ABOUT THE REAL 4.0

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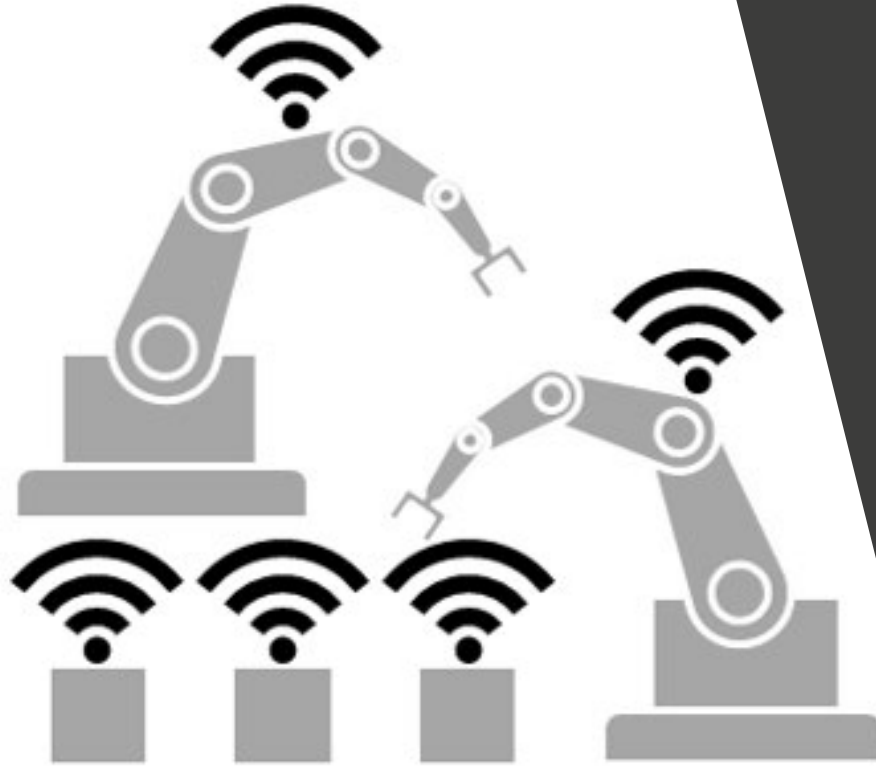
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02. 4.0 et Pack ML



LA DIGITALISATION DES LIGNES DE PRODUCTION



Connexion à distance



Machines
interconnectées



IoT / Traçabilité

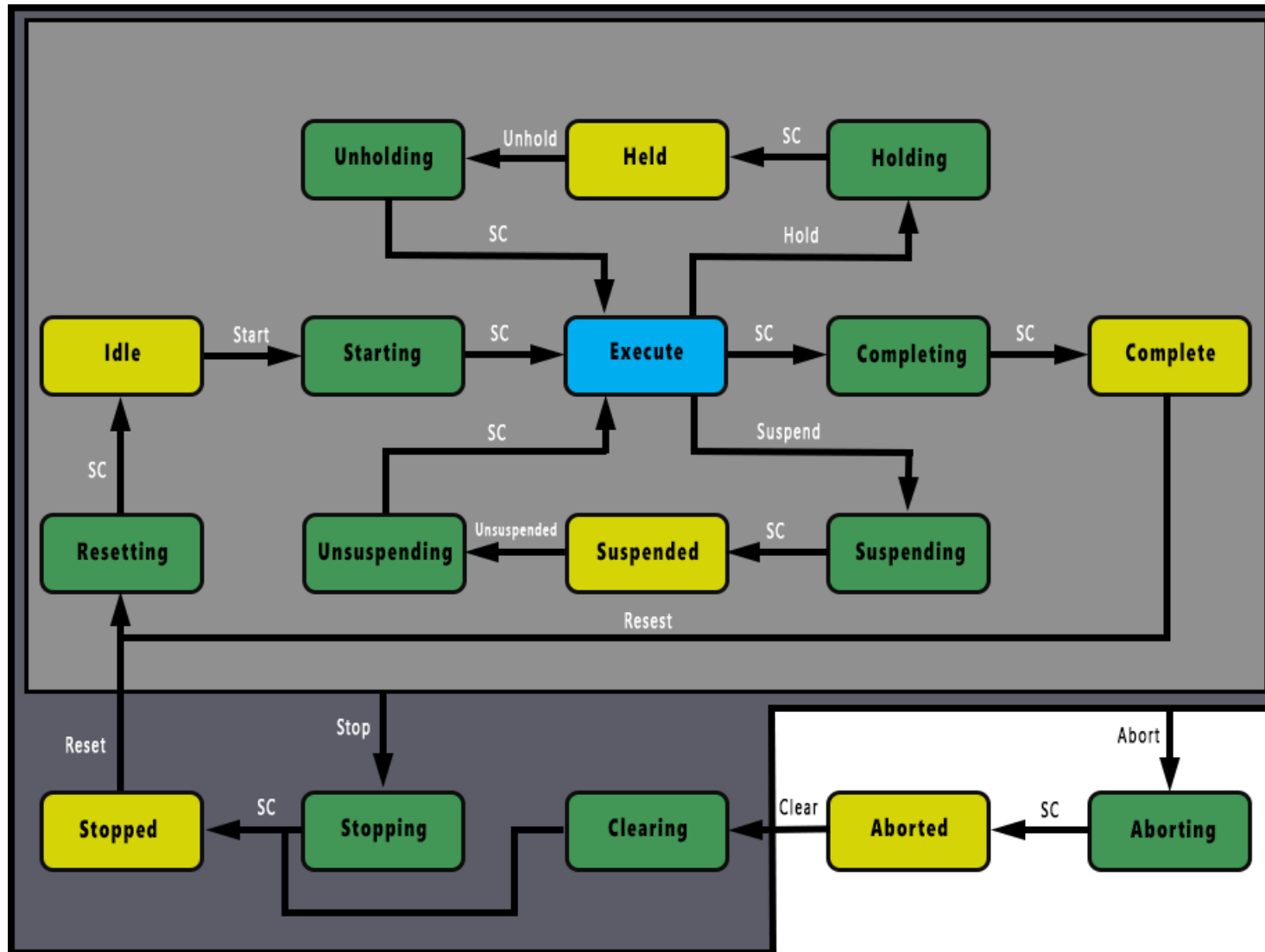


Automatisation
Robotisation
Cobotique



Remontées de
données

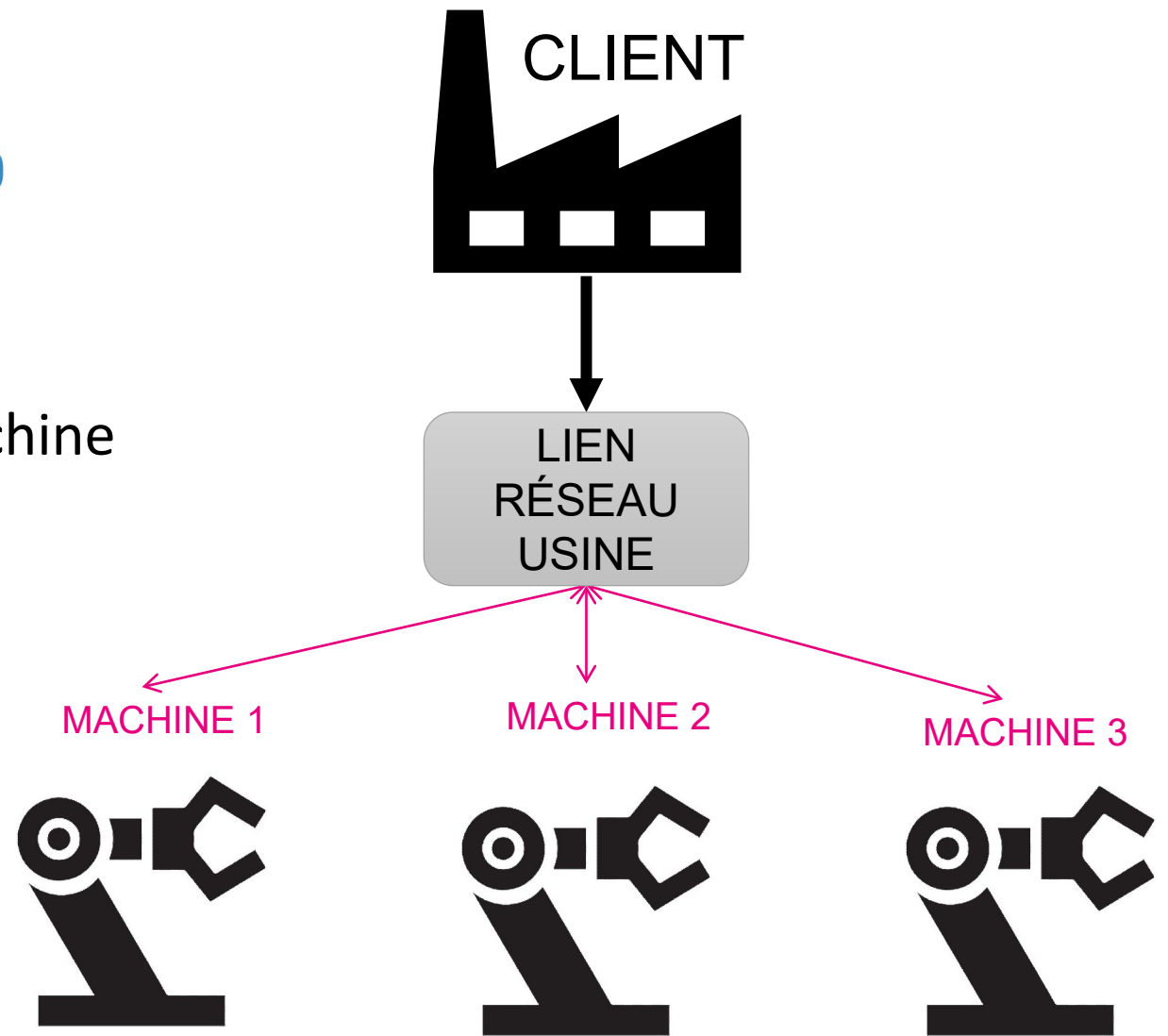
PackML



PackML

L'utilisation des **PackTags** :
Standardisation des données machine

- **Status TAG** : balises pour la lecture d'état de la machine
- **Admin TAG** : balises de récupération et remontées de datas
- **Command TAG** : balises pour le contrôle de la machine

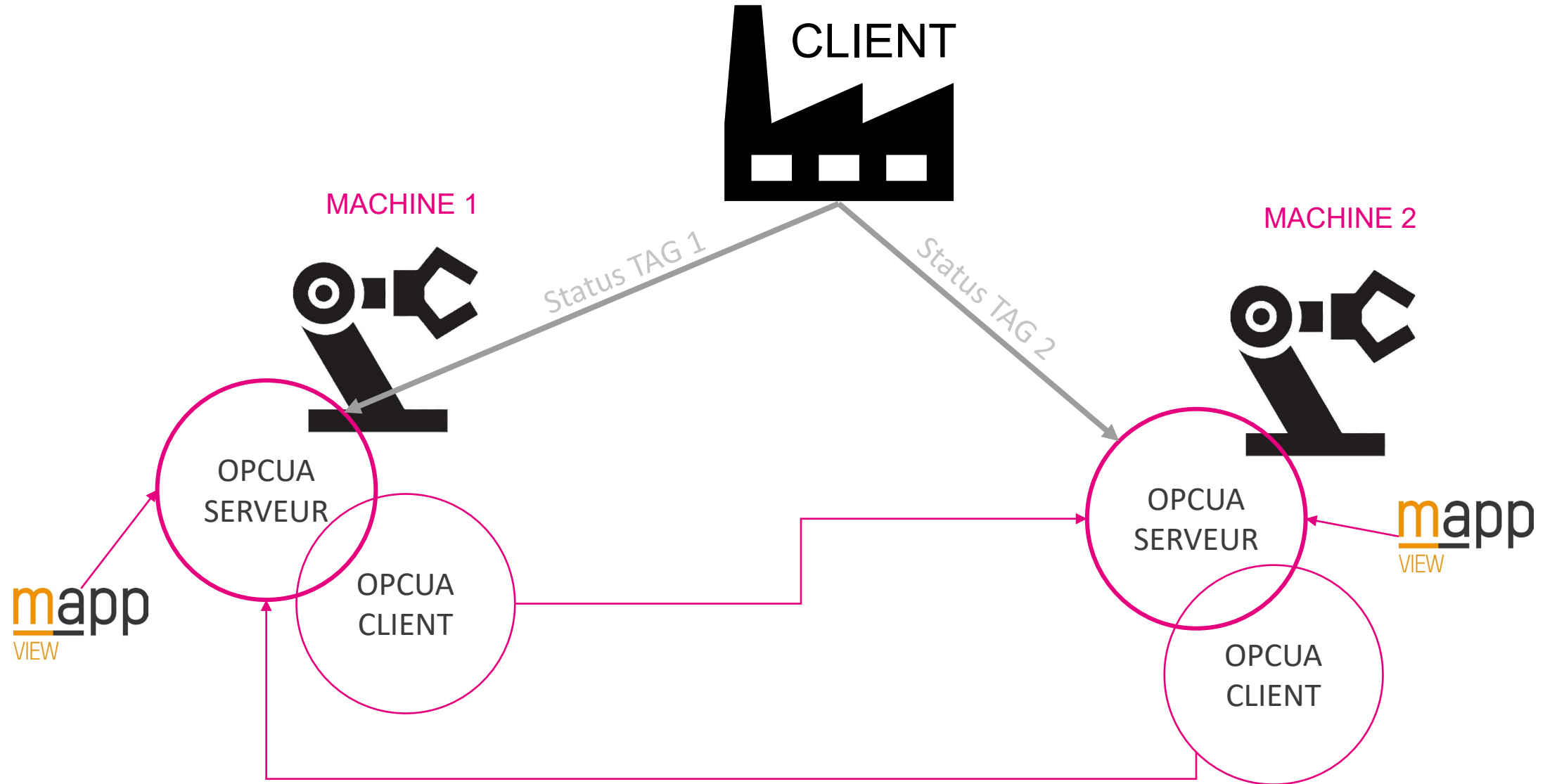


03

• Nos machines et l'OPC UA



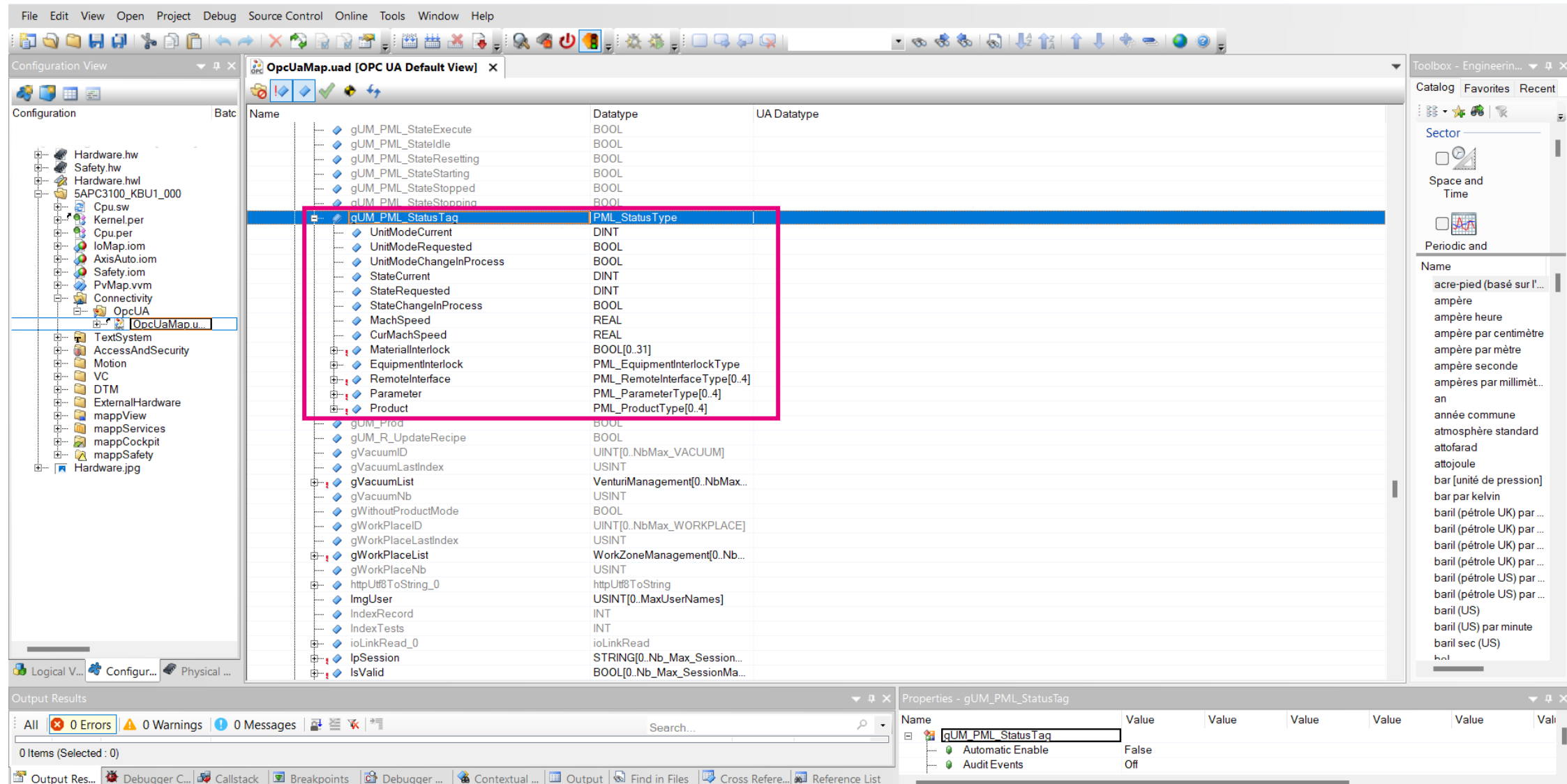
NOTRE ARCHITECTURE



Admin TAG : INFORMATIONS GLOBALES DE PRODUCTION

PackTag Type	PackTag Name	Example of End User term	Datatype
Status	UnitModeCurrent	Mode	DInt (32bit)
Status	StateCurrent	State	DInt (32bit)
Status	MachSpeed	Nominal Speed	Real
Status	CurMachSpeed	Current Speed	Real
Status	EquipmentInterlock.Blocked	Blockage	Bool
Status	EquipmentInterlock.Starved	Starvation	Bool
Admin	StopReason.ID	Event and stop reason	DInt (32bit)
Admin	ProdProcessedCount[#].Count	OEE total count	DInt (32bit)
Admin	ProdDefectiveCount[#].Count	OEE bad count	DInt (32bit)
Command	UnitMode	Mode	DInt (32bit)
Command	UnitModeChangeRequest	Change mode	Bool
Command	MachSpeed	Machine Speed	Real
Command	CntrlCmd	Command	DInt (32bit)
Command	CmdChangeRequest	Change command	Bool

CÔTÉ SERVEUR : LA MISE À DISPOSITION DES VARIABLES



The screenshot displays the Siemens SIMATIC Manager interface, specifically the OPC UA Default View. The main window shows a list of variables and their datatypes. A pink box highlights the 'gUM_PML_StatusTag' variable, which is of type 'PML_StatusType'. The right sidebar shows a list of units with their datatypes and UA datatypes. The bottom right shows the properties of the selected variable.

Name	Datatype	UA Datatype
gUM_PML_StateExecute	BOOL	
gUM_PML_StateIdle	BOOL	
gUM_PML_StateResetting	BOOL	
gUM_PML_StateStarting	BOOL	
gUM_PML_StateStopped	BOOL	
gUM_PML_StateStopping	BOOL	
gUM_PML_StatusTag	PML_StatusType	
UnitModeCurrent	DINT	
UnitModeRequested	BOOL	
UnitModeChangeInProcess	BOOL	
StateCurrent	DINT	
StateRequested	DINT	
StateChangeInProcess	BOOL	
MachSpeed	REAL	
CurMachSpeed	REAL	
MaterialInterlock	BOOL[0..31]	
EquipmentInterlock	PML_EquipmentInterlockType	
RemoteInterface	PML_RemoteInterfaceType[0..4]	
Parameter	PML_ParameterType[0..4]	
Product	PML_ProductType[0..4]	
gUM_Prod	BOOL	
gUM_R_UpdateRecipe	BOOL	
gVacuumID	UINT[0..NbMax_VACUUM]	
gVacuumLastIndex	USINT	
gVacuumList	VenturiManagement[0..NbMax...]	
gVacuumNb	USINT	
gWithoutProductMode	BOOL	
gWorkPlaceID	UINT[0..NbMax_WORKPLACE]	
gWorkPlaceLastIndex	USINT	
gWorkPlaceList	WorkZoneManagement[0..Nb...]	
gWorkPlaceNb	USINT	
httpUrl8Tostring_0	httpUrl8ToString	
ImgUser	USINT[0..MaxUserNames]	
IndexRecord	INT	
IndexTests	INT	
ioLinkRead_0	ioLinkRead	
IpSession	STRING[0..Nb_Max_Session...]	
IsValid	BOOL[0..Nb_Max_SessionMa...]	

Properties - gUM_PML_StatusTag

Name	Value	Value	Value	Value	Value	Value
gUM_PML_StatusTag						
Automatic Enable	False					
Audit Events	Off					

CÔTÉ CLIENT : UA-EXPERT

The screenshot displays the Unified Automation UaExpert interface. The main window shows the 'Data Access View' with a table of data points. The 'Address Space' pane on the left lists various objects, with 'gUM_PML_StatusTag' highlighted. The 'Edit Value' dialog is open, showing the 'PML_StatusType' object and its properties. The 'Attributes' pane on the right shows the 'Value' attribute of the selected object.

Data Access View Table:

#	Server	Node Id	Display Name	Value	Datatype	Source Timestamp	Server Timestamp	Status
1	B&R Embedded OPC-UA Server and Client	NS6[String]::AsGlobalPV:gUM_PML_AdminTag	qUM_PML_AdminTag	Double click to display val...	ExtensionObject	10:44:10.513	10:44:10.513	Good
2	B&R Embedded OPC-UA Server and Client	NS6[String]::AsGlobalPV:gUM_PML_CommandTag	qUM_PML_CommandTag	Double click to display val...	ExtensionObject	10:43:35.545	10:43:35.545	Good
3	B&R Embedded OPC-UA Server and Client	NS6[String]::AsGlobalPV:gUM_PML_StatusTag	qUM_PML_StatusTag	Double click to display val...	ExtensionObject	10:43:41.057	10:43:41.057	Good

Edit Value Dialog:

Name	Value
UnitModeCurrent	2
UnitModeRequested	false
UnitModeChangeInProcess	false
StateCurrent	9
StateRequested	0
StateChangeInProcess	false
MachSpeed	0
CurMachSpeed	0
MaterialInterlock	Boolean Array[32]
EquipmentInterlock	PML_EquipmentInterlockType
Blocked	false
Starved	false
RemoteInterface	PML_RemoteInterfaceType Array[5]
Parameter	PML_ParameterType Array[5]
Product	PML_ProductType Array[5]

Attributes Pane:

Attribute	Value
NodeId	ns=6;s=::AsGlobalPV:gUM_PML_StatusTag
NamespaceIndex	6
IdentifierType	String
Identifier	::AsGlobalPV:gUM_PML_StatusTag
NodeClass	Variable
BrowseName	6, "gUM_PML_StatusTag"
DisplayName	"", "gUM_PML_StatusTag"
Description	"", ""
WriteMask	0
UserWriteMask	0
RolePermissions	BadAttributeIdInvalid
UserRolePermissions	BadAttributeIdInvalid
AccessRestrictions	BadAttributeIdInvalid
Value	
SourceTimestamp	09/12/2022 10:43:39.
SourcePicoseconds	0
ServerTimestamp	09/12/2022 10:43:39.
ServerPicoseconds	0
StatusCode	Good (0x00000000)
Value	PML_StatusType

References Pane:

Reference	Target DisplayName
HasTypeDefinition	PML_StatusType
HasComponent	UnitModeCurrent
HasComponent	UnitModeRequested
HasComponent	UnitModeChangeInProcess
HasComponent	StateCurrent
HasComponent	StateRequested
HasComponent	StateChangeInProcess
HasComponent	MachSpeed
HasComponent	CurMachSpeed
HasComponent	MaterialInterlock
HasComponent	EquipmentInterlock
HasComponent	RemoteInterface
HasComponent	Parameter
HasComponent	Product



PackML



Mise à disposition sur le serveur OpcUA de plus de 20 000 variables !

Objectifs :

- Éviter la configuration spécifique en mettant à disposition les variables standards.
- Rester moteur dans la flexibilité des lignes de production.
- Limiter les saturation réseau en évitant les bus de terrain.



Merci de votre attention...