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OPEN ENERGY MARKETPLACES AND THE ENABLING TECHNOLOGIES

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ENTROPY Key Technological Concepts

Socioeconomic Impact Valuation and Assessment

Impact
- Motivating citizens' behavioural changes towards energy efficient lifestyles
- Increasing the environmental awareness of consumers stimulating collaboration among them
- engaging citizens via empowering them to manage their buildings' energy consumption

ENTROPY Cleanweb Framework

Mobile Crowd Sensing

Internet of Things and Wireless Sensor Networks

Energy-efficient Lifestyle Recommenders for Behavioral Change

Gamification Techniques and Serious Games

Energy-aware Monitoring Parameters Model

Impact
-Increased real-time energy consumption data collection reliability from various sources
- Buildings' energy consumption optimization and optimal use of energy resources
-Improved environmental and financial performance of publically owned buildings

Citizens

ENTROPY Energy-aware Behavioral Change Value-Added Services
- Automated energy consumption data collection
- Real-time monitoring and analysis of all energy consumption data
- Personalized behavioural analysis and consumption disaggregation
- Serious games in booklet, interactive and team role playing modes
- Powerful algorithms to disaggregate and process data from a household's consumption
- Consumption and cost efficiency motivation and information
- Energy characterisation of buildings and services
- Publishing and sharing of data on Social Media and by using Linked Data technologies

Buildings and Sites of Public Interest

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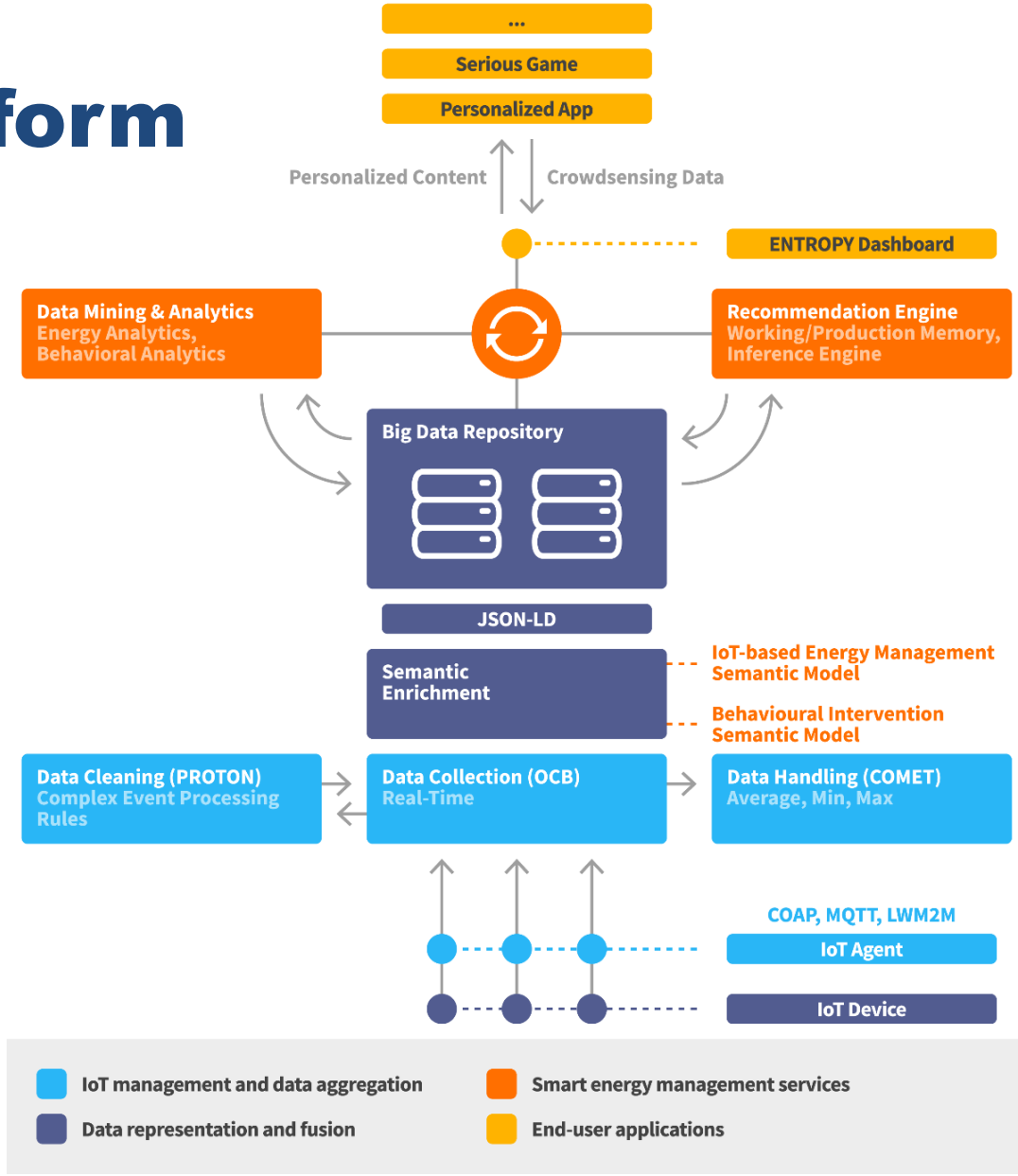
ENTROPY Platform



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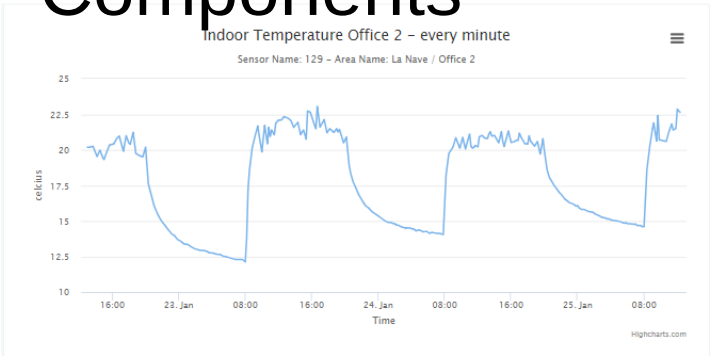
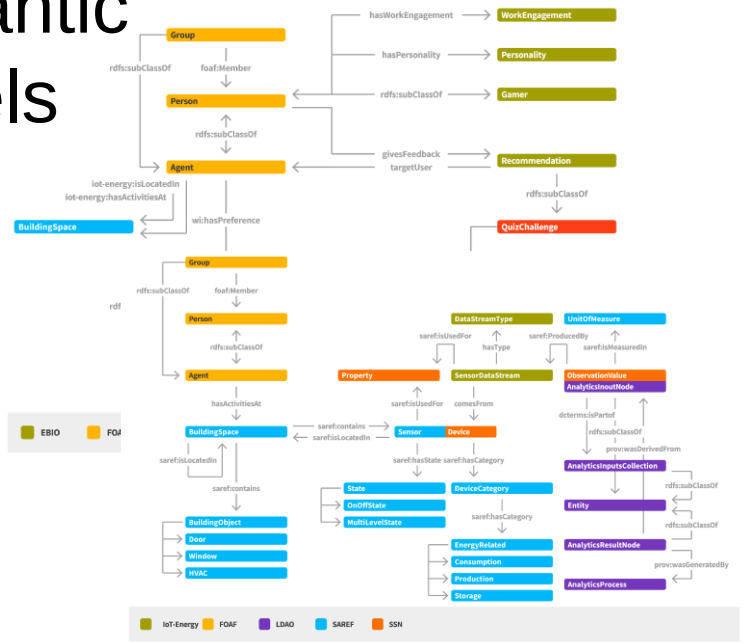
IoT Data Collection and Management

FIWARE Components



Semantic Models



- Homogenous data
- Ease interlinking (JSON-LD)
- Common access to data

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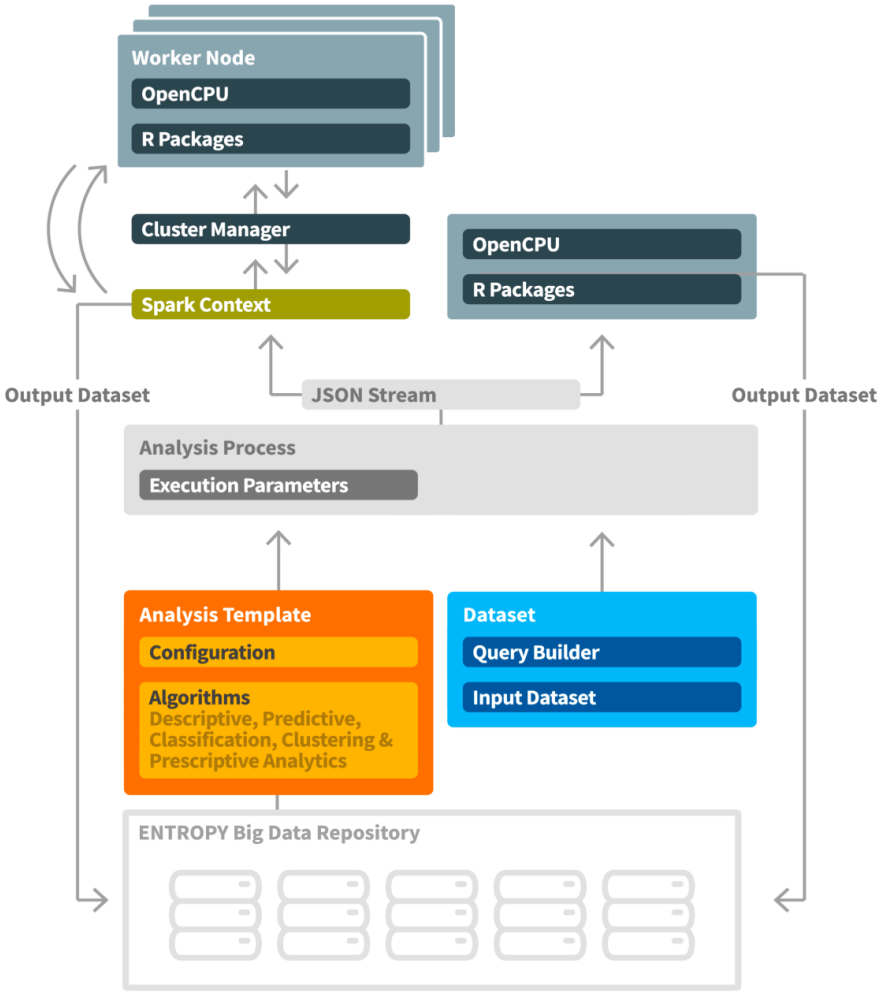
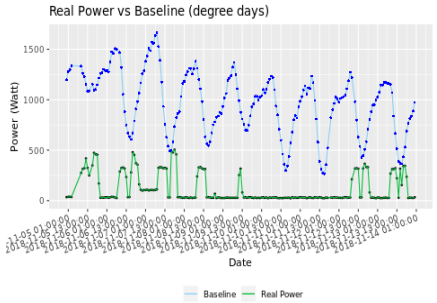
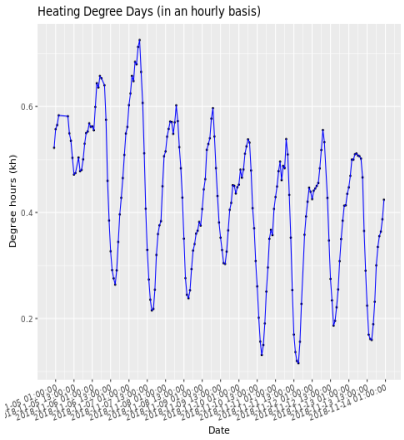
Energy and Behavioral Data Analytics







Statistic View

Users metrics

(pre) Personal Motives

	(0,1]	(1,2]	(2,3]	(3,4]	(4,5]	(5,6]	(6,7]
Amotivation	5	5	4	6	1	1	2
External Regulation	2	7	5	7	0	1	2
Introjected Regulation	1	0	3	5	1	8	6
Identified Regulation	1	0	1	3	2	4	13
Integrated Regulation	1	0	5	6	4	4	4
Intrinsic Motivation	1	0	3	6	2	7	5

0 2.5 5 7.5 10 12.5 15

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Main Comments

- The **end user/customer in the loop** to take into account needs → behavior analysis and integration in the energy consumption predictions
- The platforms need to link through each other through **interoperable and modular interfaces** → Interoperability like NGSI-LD in Smart Platform
- Important the capability of **prediction/forecast, data analytics and behavioral patterns** discovery → Big Data
- **Authorised Data access:** personal data remains under the control of their respective owners and is available to community or to third parties on demand → User centric data management and privacy preserving
- **Trusted** source of data and ML mechanism for monitoring and pruning abnormal data. DTL could be interesting but not necessary the best option always

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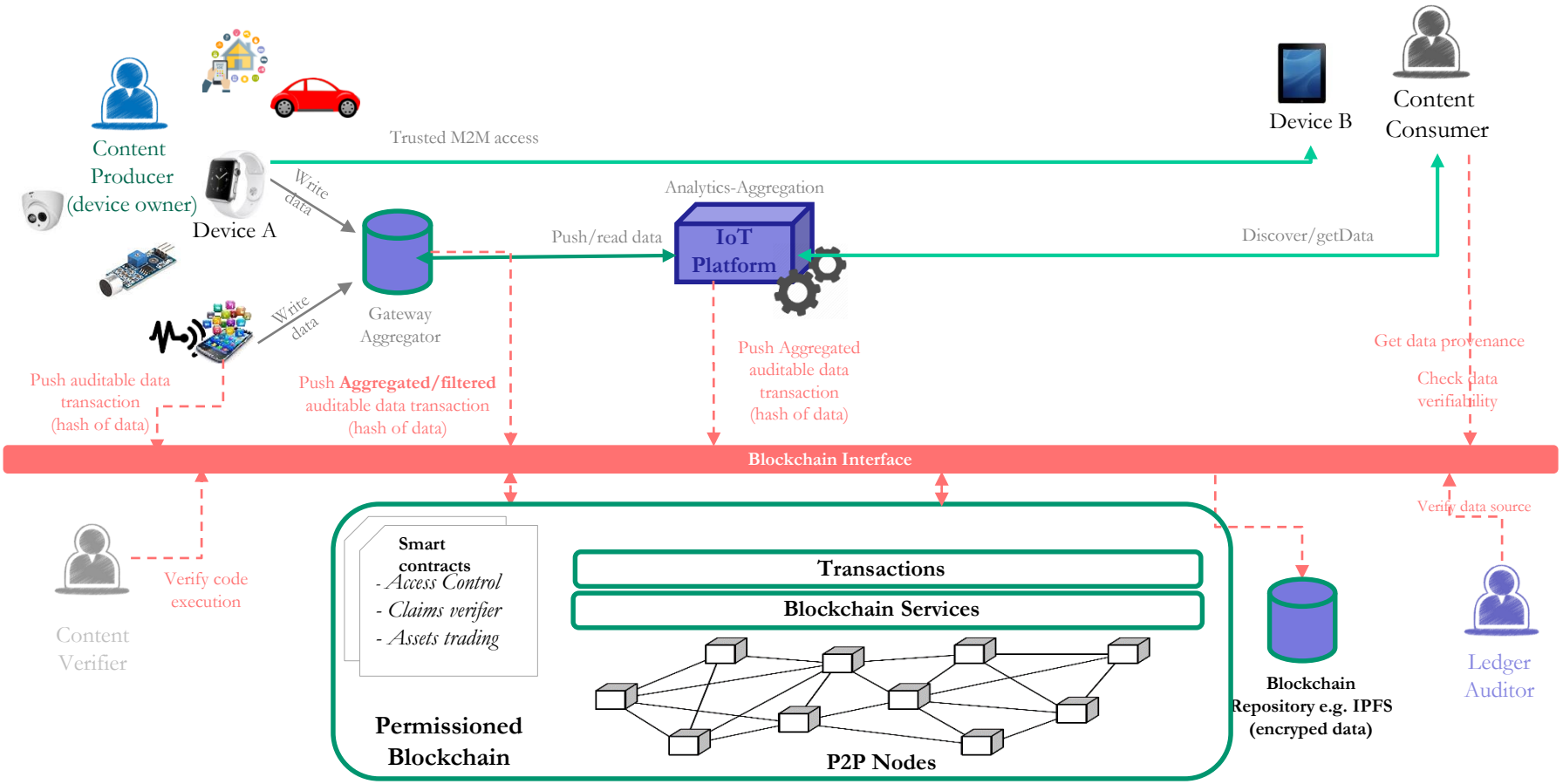
Data provenance



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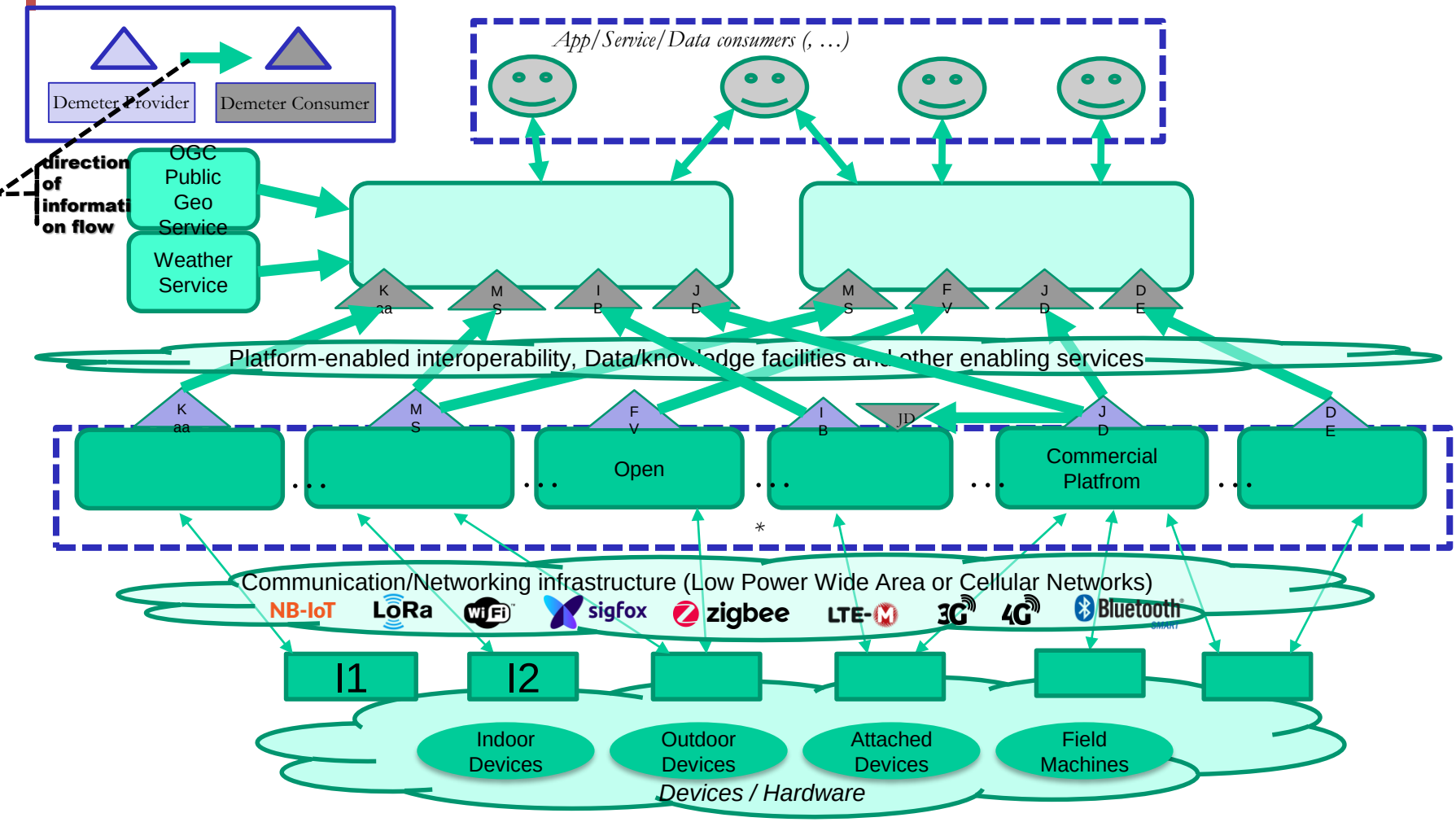
System of System Approach



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Thank you!
Questions?