

Questionnaire: 7, 10, 13, 14, 15, 16, 17, 19, 21

ITERATION 1

case study survey edge - ITERATION1 (master)

- 6 documents: 16, 17, 18, 22, 23, 24
- 29 codes

- ◇ B01 better user experience
- ◇ B02 less response time
- ◇ B03 greater efficiency and speed
- ◇ C01 (physical/virtual) device characterization:...
- ◇ C02 restricted capabilities (limited computati...
- ◇ C03 devices type: sensors, actuators, constrain...
- ◇ F01 local processing in device
- ◇ F02 reliable services
- ◇ F03 devices take over part of the data center/...
- ◇ F04 functionality: data aggregation and filteri...
- ◇ F05 bringing infrastructure closer to the consu...
- ◇ G01 cloud-managed (remote) over the air up...
- ◇ G02 continuous integration (CI) and continuou...
- ◇ G03 remote and local over-the-air updates
- ◇ G04 automated provisioning, monitoring, dep...
- ◇ G05 bringing agile methodologies with custo...
- ◇ N01 (less) bandwidth
- ◇ N02 (less/low) latency
- ◇ N03 speed up communications
- ◇ N04 data exchange between multiple nodes
- ◇ R01 time to market
- ◇ R02 speed up delivery
- ◇ R03 supervision and management, certifications
- ◇ R04 deployment time
- ◇ R05 scalability
- ◇ R06 security
- ◇ T01 containers
- ◇ T02 virtual environments (machines, networks,...)
- ◇ T03 downlinks of wireless communication net...

- 65 quotations

CODER1 (jpm) case study survey edge - ITERATION1 (jepm)

Changes: NA

CODER 2 (jdf) case study survey edge - ITERATION1 (jdf)

Changes:

- 6 documents
- 40 codes

- ◇ B01 better user experience
- ◇ B02 less response time
- ◇ B03 greater efficiency and speed
- ◇ B04 save energy
- ◇ C01 (physical/virtual) device characterization: intelligence, reliabil
- ◇ C02 restricted capabilities (limited computational capabilities)
- ◇ C03 devices type: sensors, actuators, constrained devices, gateway
- ◇ C04 decives type: medical devices
- ◇ F01 local processing in device
- ◇ F02 reliable services
- ◇ F03 devices take over part of the data center/cloud workload
- ◇ F04 functionality: communication with other devices
- ◇ F04 functionality: data aggregation and filtering, data analytics, vi
- ◇ F04 functionality: data collection
- ◇ F04 functionality: decision making
- ◇ F05 bringing infrastructure closer to the consumer
- ◇ G01 cloud-managed (remote) over the air updates
- ◇ G02 continuous integration (CI) and continuous delivery/deploym
- ◇ G03 remote and local over-the-air updates
- ◇ G04 automated provisioning, monitoring, deployment, build, testi
- ◇ G05 bringing agile methodologies with customers
- ◇ G06 servers (remote) over the air updates
- ◇ G07 https requests (remote) over the air updates
- ◇ N01 (less) bandwidth
- ◇ N02 (less/low) latency
- ◇ N03 speed up communications
- ◇ N04 data exchange between multiple nodes
- ◇ R01 time to market
- ◇ R02 speed up delivery
- ◇ R03 supervision and management, certifications
- ◇ R04 deployment time
- ◇ R05 scalability
- ◇ R06 security
- ◇ R07 vendor lock-in
- ◇ R08 (maintenance) cost
- ◇ R10 reliability
- ◇ T01 containers
- ◇ T02 virtual environments (machines, networks, servers)
- ◇ T03 downlinks of wireless communication networks
- ◇ T04 orchestration layer

- 70 quotations
 - D2: new quotations 2:12 2:13
 - D3: modified quotation 3:5 3:9 new quotation 3:14
 - D4: modified quotation 4:3 deleted quotation 4:4
 - D5: modified quotation 5:12 new quotation 5:13 5:14
 - D6: modified quotation 6:7 new quotation 6:14

CODER 3 (cgp) case study survey edge - ITERATION1 (cgp)

No changes.

DISAGREEMENTS IN CODING

See [case study survey edge - ITERATION1 ICA \(jdf + jepm + cgp\) - alpha binary.pdf](#)

See [case study survey edge - ITERATION1 ICA \(jdf + jepm + cgp\) - alpha binary.xlsx](#)

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- B02 less response time
- B03 greater speed and efficiency
- R06 security
- F04 decision making

- Coders

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Jorge Enrique Pérez Martínez ✕

P15

What are the criteria used to decide the function placement/service of the edge computing (complexity, device capacity, latency)?

Our main criteria for using edge computing in the future would be the speed of reaction and the security of not needing the cloud for decision making

P16

What are the computation devices at the edge (virtual machines/ containers/ network virtualization/system virtualization)?

- B02 less response time
- B02 less response time
- B03 greater efficiency and speed
- F04 functionality: decision mak...
- R06 security

- C01 (physical/virtual) device characterization: intelligence, **reliability**, **security**, **efficiency**, availability, status, load
- F03 devices take over part of the data center/cloud workload

P10

Why to opt for edge computing?

Si llevamos la inteligencia a los dispositivos no sería estrictamente necesario que se conectaran a la nube, reduciendo así consumos y tamaño por ejemplo

P11 NO

We have already deployed/are currently deploying IoT

- B04 save energy
- B04 save energy
- C01 (physical/virtual) device ch...
- F03 devices take over part of t...

- C02 restricted capabilities (limited computational capabilities)

P10

Why to opt for edge computing?

With the rise of IoT, more and more distributed computational resources are available. It allows to unload the computational load that occurs in the cloud or datacenters, and reduce response times. Additionally, it is usually possible to decrease the bandwidth needs at the site for a given use case.

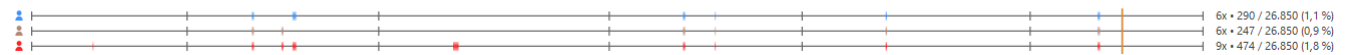
P11 YES

- C02 restricted capabilities (limi...
- F03 devices take over part of t...
- F03 devices take over part of t...
- F03 devices take over part of t...

◇ C01 (physical/virtual) device characterization: intelligence, reliability, security, efficiency, availability, status, load ✖



◇ C03 devices type: sensors, actuators, constrained devices, gateways, micro-controllers, miniPCs, servers ✖



P19

Have your IoT Edge solutions automatized any other process of the application lifecycle (e.g., device provisioning, build, testing, monitoring, etc.)?

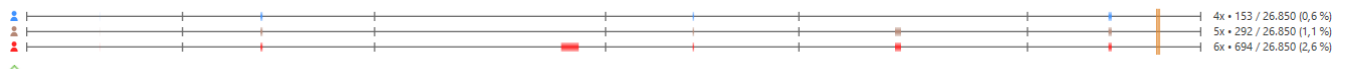
yes, device provisioning and monitoring device health.

P20

What do you think about the necessary effort in the development of IoT edge solutions versus traditional IoT cloud solutions? Could you estimate the percentage of the difference?

- ◇ C04 decives type: medical devi...
- ◇ G04 automated provisioning,...
- ◇ G04 automated provisioning,...
- ◇ G04 automated provisioning,...

◇ F04 functionality: data aggregation and filtering, data analytics, video processing, artificial intelligence, control logic ✖



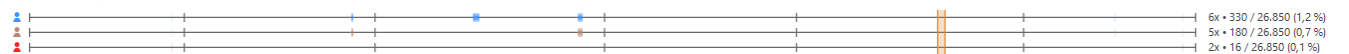
◇ F05 bringing infrastructure closer to the consumer ✖



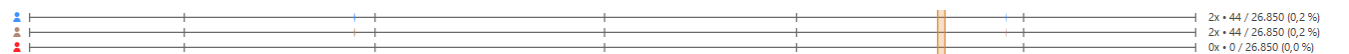
◇ G04 automated provisioning, monitoring, deployment, build, testing, maintaning ✖



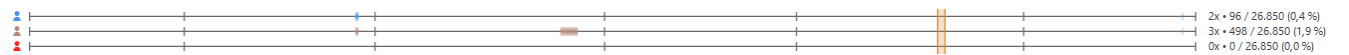
◇ R06 security ✖



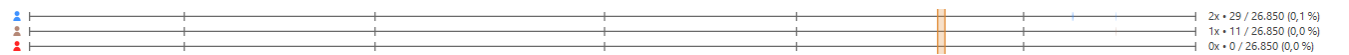
◇ R07 vendor lock-in ✖



◇ R08 (maintenance) cost ✖



◇ R10 reliability ✖



ITERATION 2

case study survey edge – ITERATION2 (master)

- 6 documents: 01, 02, 04, 05, 07, 09
- 39 codes

- B01 better user experience
- B02 less response time
- B03 greater efficiency
- B04 save energy
- C01 (physical/virtual) device characterization: intelligence, availability, status, load
- C02 restricted capabilities (limited computational capabilities)
- C03 devices type: sensors, actuators, constrained devices, gateways, micro-controllers, mini...
- C04 devices type: medical devices
- C05 distributed architecture
- F01 local processing in device~
- F03 devices take over part of the data center/cloud workload
- F04 functionality: data collection
- F05 functionality: data aggregation and filtering, data analytics, video processing, artificial...
- F06 functionality: communication with other devices
- F07 functionality: decision making
- G01 cloud-managed (remote) over the air updates
- G02 continuous integration (CI) and continuous delivery/deployment (CD)
- G03 remote and local over-the-air updates
- G04 automated provisioning, monitoring, deployment, build, testing, maintaining
- G05 bringing agile methodologies with customers
- G06 servers (remote) over the air updates
- G07 https requests (remote) over the air updates
- N01 (less) bandwidth
- N02 (less/low) latency
- N03 speed up communications
- N04 data exchange between multiple nodes
- R01 time to market
- R02 speed up delivery
- R03 supervision and management, certifications
- R04 deployment time
- R05 scalability
- R06 security
- R07 vendor lock-in
- R08 (maintenance) cost
- R10 reliability
- T01 containers
- T02 virtual environments (machines, networks, servers)
- T03 downlinks of wireless communication networks
- T04 orchestration layer

- 69 quotations

CODER1 (jdf) case study survey edge – ITERATION2 (jdf)

- 47 codes
- F05 data aggregation and filtering and data analytics
- F06 video processing, virtual (augmented) reality, artificial intelligence, and control logic
- N05 disconnected mode

- C03 sensors, actuators, constrained devices, gateways, micro-controllers, miniPCs
- C04 medical devices
- C05 servers, mini-datacenters
- C06 IoT SIM cards

- B05 better performance
- B06 business needs
- G08 billing data in real time
- G09 locally-managed over the air updates
- G06 servers (remote) over the air updates~
- G07 https requests (remote) over the air updates

Comment: Edited 28/05/2021 16:47 by Jessica Diaz
this includes orchestrators such as kubernetes or openshift

CODER 2 (jepm) case study survey edge – ITERATION2 (jepm)

No changes.

CODER 3 (cgp) case study survey edge – ITERATION2 (cgp)

No changes.

DISAGREEMENTS IN CODING

NA because Krippendorff alpha thresholds > 0.8

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