Reference Architecture for Network Digital Twins Survey

Digital twins (DT) have emerged as a powerful tool, enabling virtual representations of physical assets and systems.

With this **10 minute survey**, we aim at **understanding the potential need of a standard reference architecture for digital twins in the networking context**.

By participating, you can support us in gaining insights on the need of a DT reference architecture, and the key properties it should posses.
With Your insights and experiences, you could help us shape the future of digital twins in networking.

The survey responses will be kept anonymous and confidential, and the aggregated results will be used solely for research purposes.

Your valuable input will greatly aid in addressing the challenges and requirements associated with digital twins in networking environments.

* Indicates required question

Demographic questions

1. What is your current job position? *

2. How many years of experience do you have in the context of networking? *

3. To which extent are you familiar with concepts related to networking? *

Mark only one oval.

Not familiar at all

1 ◯

2 ◯

3 ◯

4 ◯

5 ◯

Extremely familiar

4. To which extent are you familiar with concepts related to digital twins? *

Mark only one oval.

Not familiar at all

1 ◯

2 ◯

3 ◯

4 ◯

5 ◯

Extremely familiar

On the need of a reference architecture for networking digital twins

In 2021, a document to support the **creation of digital twins of in the context of manufacturing** was published as the ISO 23247 standard.

The standard introduced a **reference architecture** for digital twins in manufacturing, i.e., a **template solution** predicating how elements in the domain are ordered and connected to each other.

An overview of the ISO 23247 standard is available at this link (kindly provided Bucaioni et al., who wrote the paper *"Standardisation in digital twin architectures in manufacturing"* on the topic).

We suggest to keep the overview open in a separate tab while completing the survey.

Note: In the following questions, the term "*networking digital twins*" is used to refer to digital twins of networking components, such as routers, switches, controllers, edge nodes, etc.

5. To which extent do you think the ISO 23247 standard can be used to represent networking digital twins? *

Mark only one oval.

	Not at all					Completely
	1	2	3	4	5	

6. Could you provide briefly motivate your previous answer? [optional]

7. To which extent do you think the ISO 23247 standard needs to be modified in order to be used in the context of networking digital twins? *

Mark only one oval.

	Not at all
1	◯
2	◯
3	◯
4	◯
5	◯
	Completely

8. Could you provide briefly motivate your previous answer? [optional]

9. To which extent do you think a reference architecture for networking digital twins * would be useful?

Mark only one oval.

Not useful at all

1 ◯

2 ◯

3 ◯

4 ◯

5 ◯

Extremely useful

10. Could you provide briefly motivate your previous answer? [optional]

Further advices on a networking digital twins architecture

11. Which networking components would you expect to be represented in a reference architecture of networking digital twins? (*separate elements with a semicolon*)

12. Which grouping of networking components would you expect to be represented in a reference architecture of networking digital twins? (*separate elements with a semicolon*)

13. To which extent do you think that elements of standardisation groups (e.g., ETSI or IETF) should be used in a potential reference architecture for networking digital twins? *

Mark only one oval.

Not at all	
1	◯
2	◯
3	◯
4	◯
5	◯
In their entirety	

14. Could you provide briefly motivate your previous answer? [optional]

15. Do you have any further comments or advices?