

Sony FeliCa: Smartcard CC Evaluation Experience with Five Schemes

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FeliCa





■ Introducing FeliCa

■ Why Several Schemes?

■ Case Study of Composite Evaluation

■ Questions?

Note: This presentation is my personal opinion.

Introducing FeliCa



FeliCa





FeliCa is a contactless IC card technology developed by Sony.

1. Flexible Application Architecture

- Multiple applications by multiple service providers on a single card

2. Fastest Transaction Speed

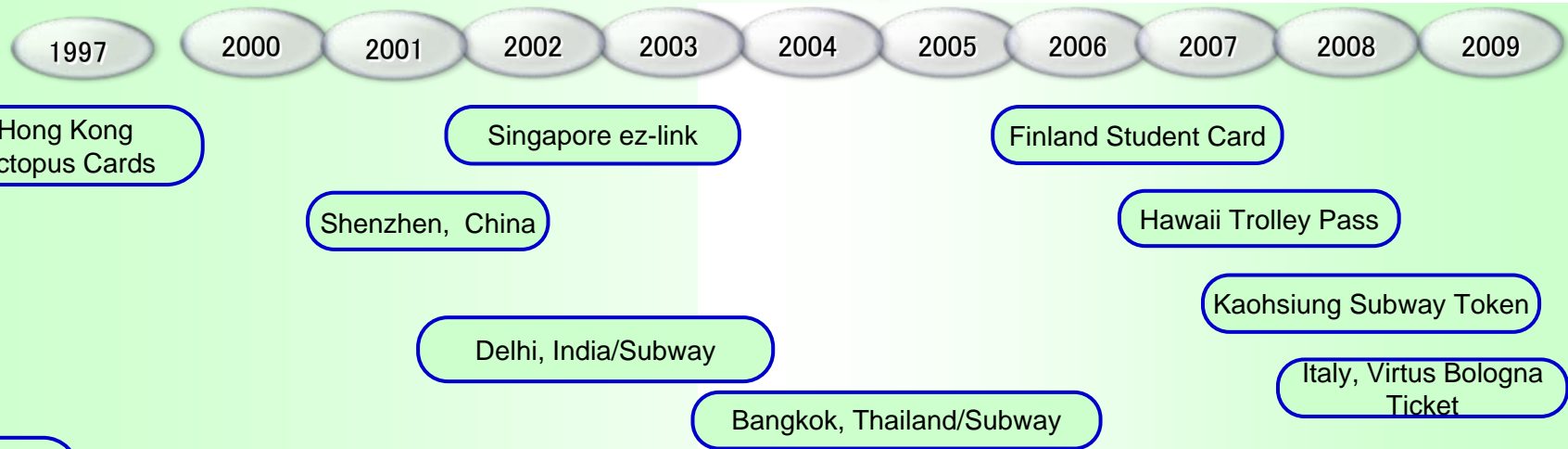
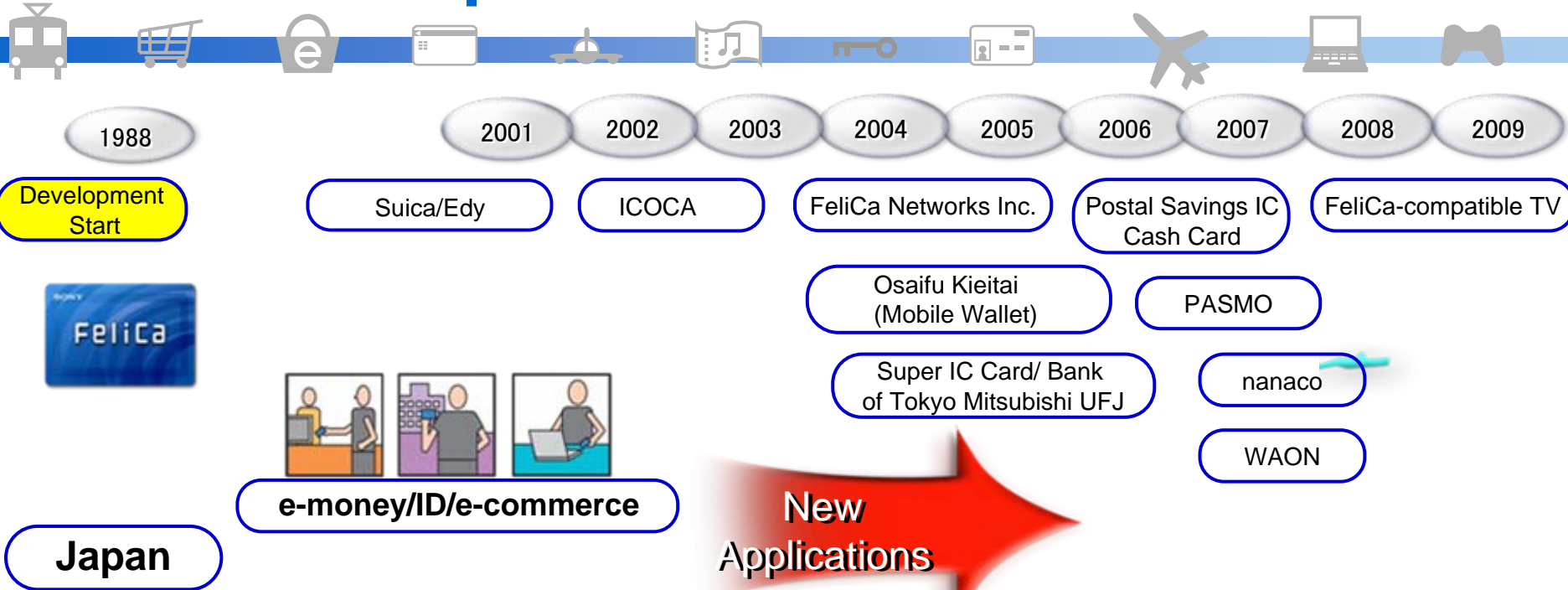
- Fastest in the industry
- Optimised for transportation system

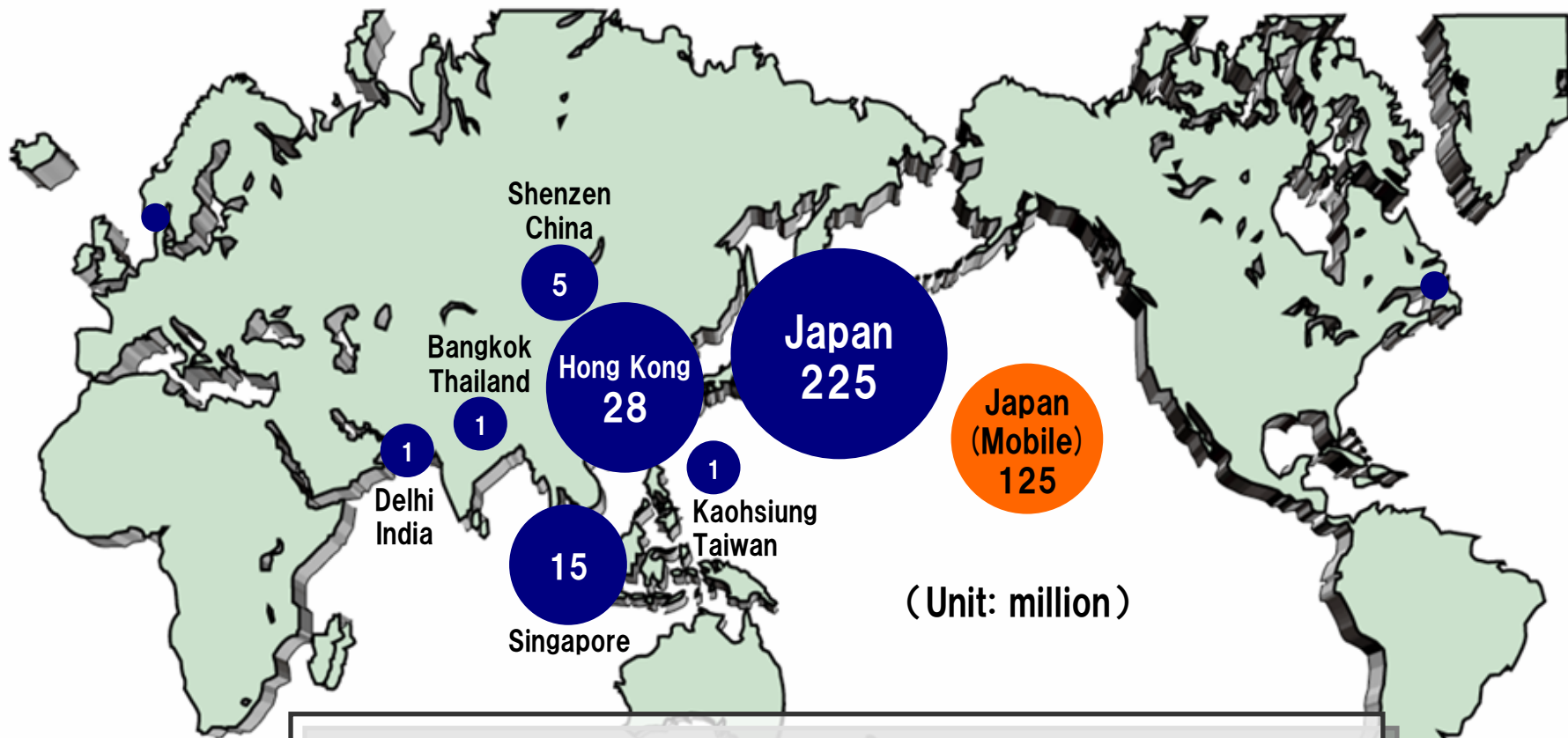
3. High Level of Security

- Mutual authentication with multiple keys
- Securely-encrypted communication data

FeliCa Development / Launch

FeliCa





**Shipments of FeliCa IC Chips reached
Over 400 Million Units**

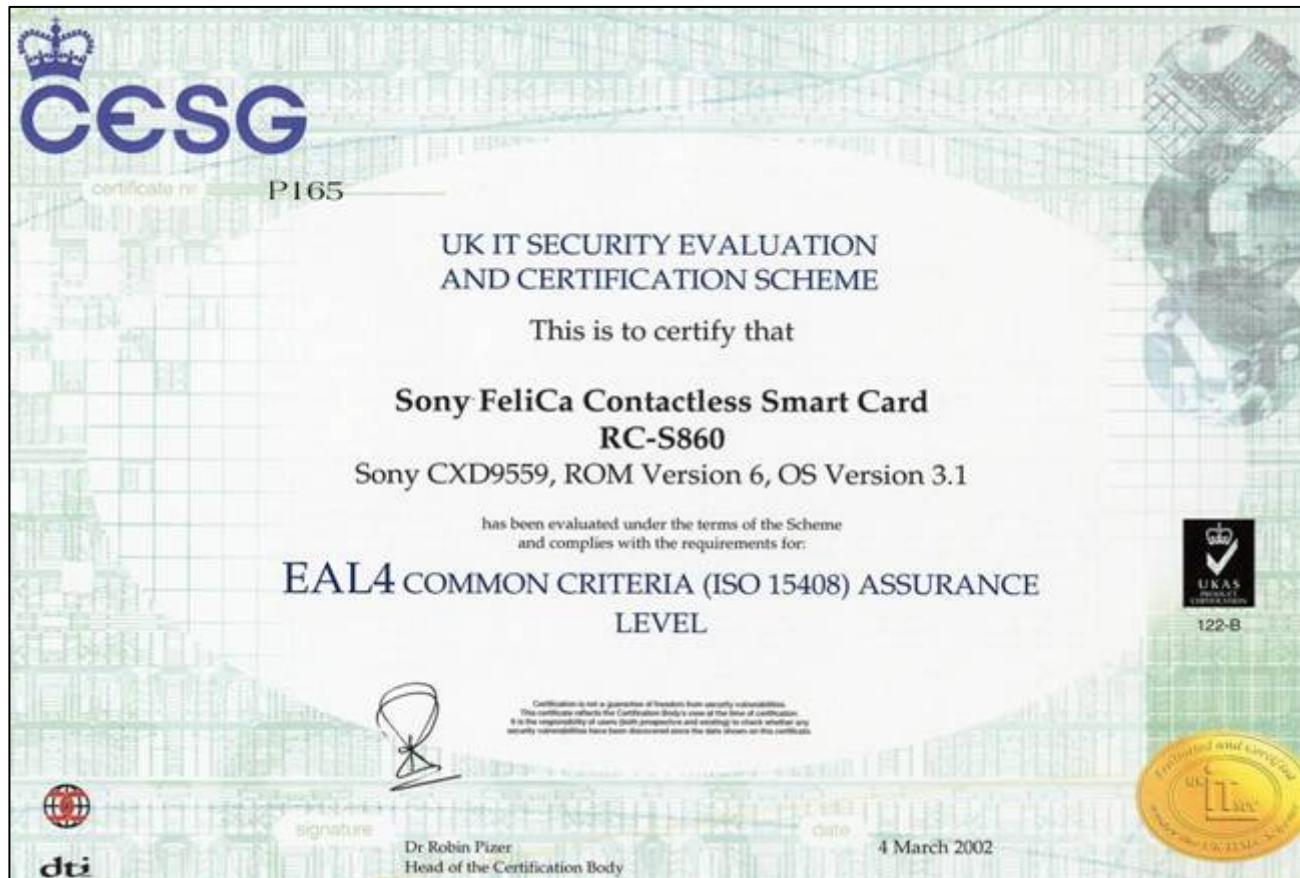
- Use in FeliCa Cards 278 million
- Use in Mobile Phones 125 million

The First Certificate

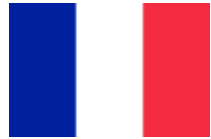
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In 2002, Sony acquired the first Common Criteria (ISO/IEC 15408) EAL4 certificate. It was also the world's first certificate for a contactless IC card (card chip & card OS).



Certification Bodies and Evaluation Bodies FeliCa



Belgium Office

Sony has obtained certificates from 5 schemes.

Why Several Schemes?



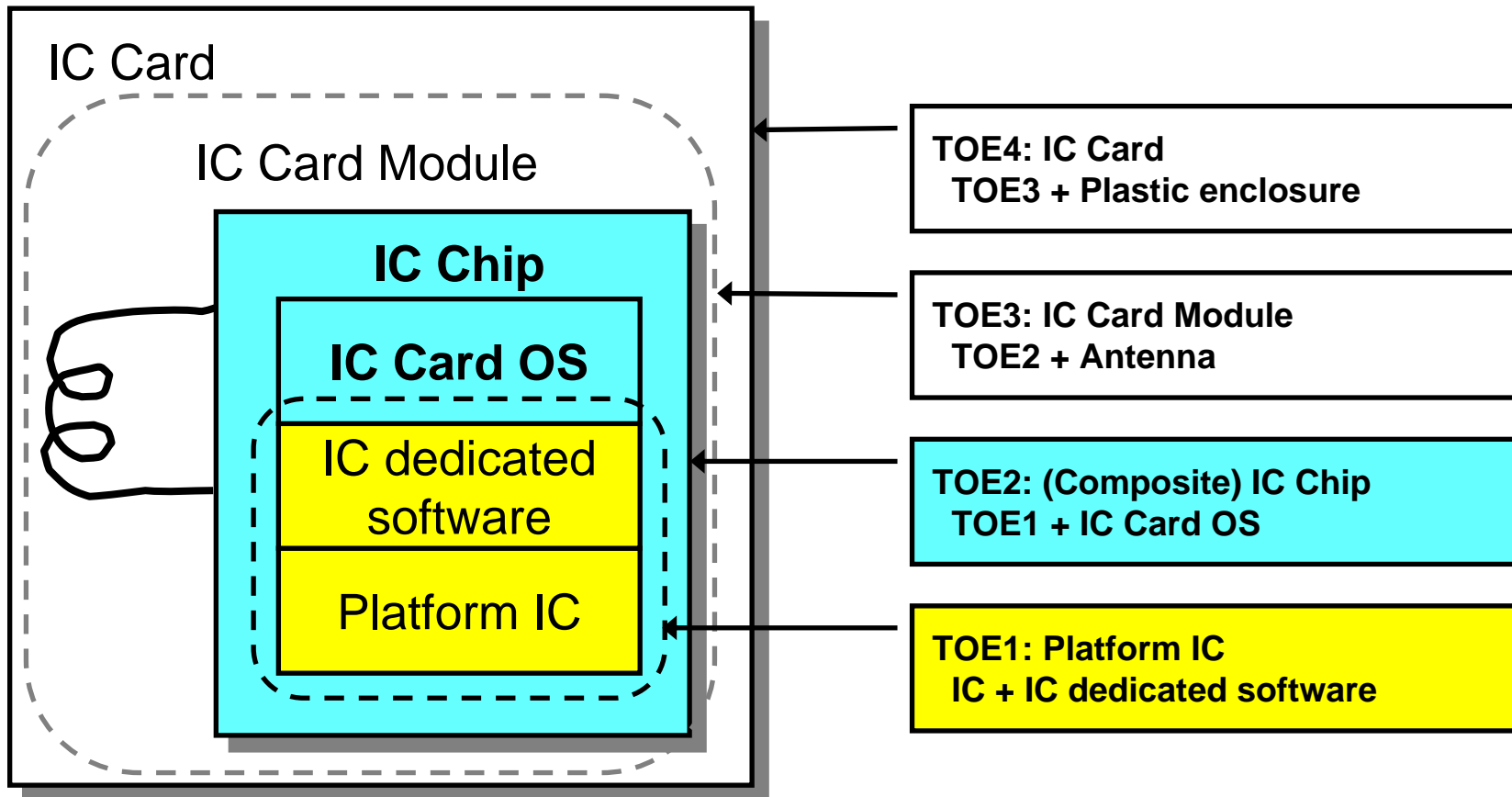
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Structure of Composite Product



- Composite product consists of at least two parts: Platform IC and IC Card OS.
- Platform IC is evaluated and certified first.
- Then, composite product is evaluated using the evaluation result of platform IC.



Composite Evaluation Framework



- Platform IC's information is necessary for composite evaluation: user guidance, sample chips, ST-lite & ETR-lite, certificate & certification report

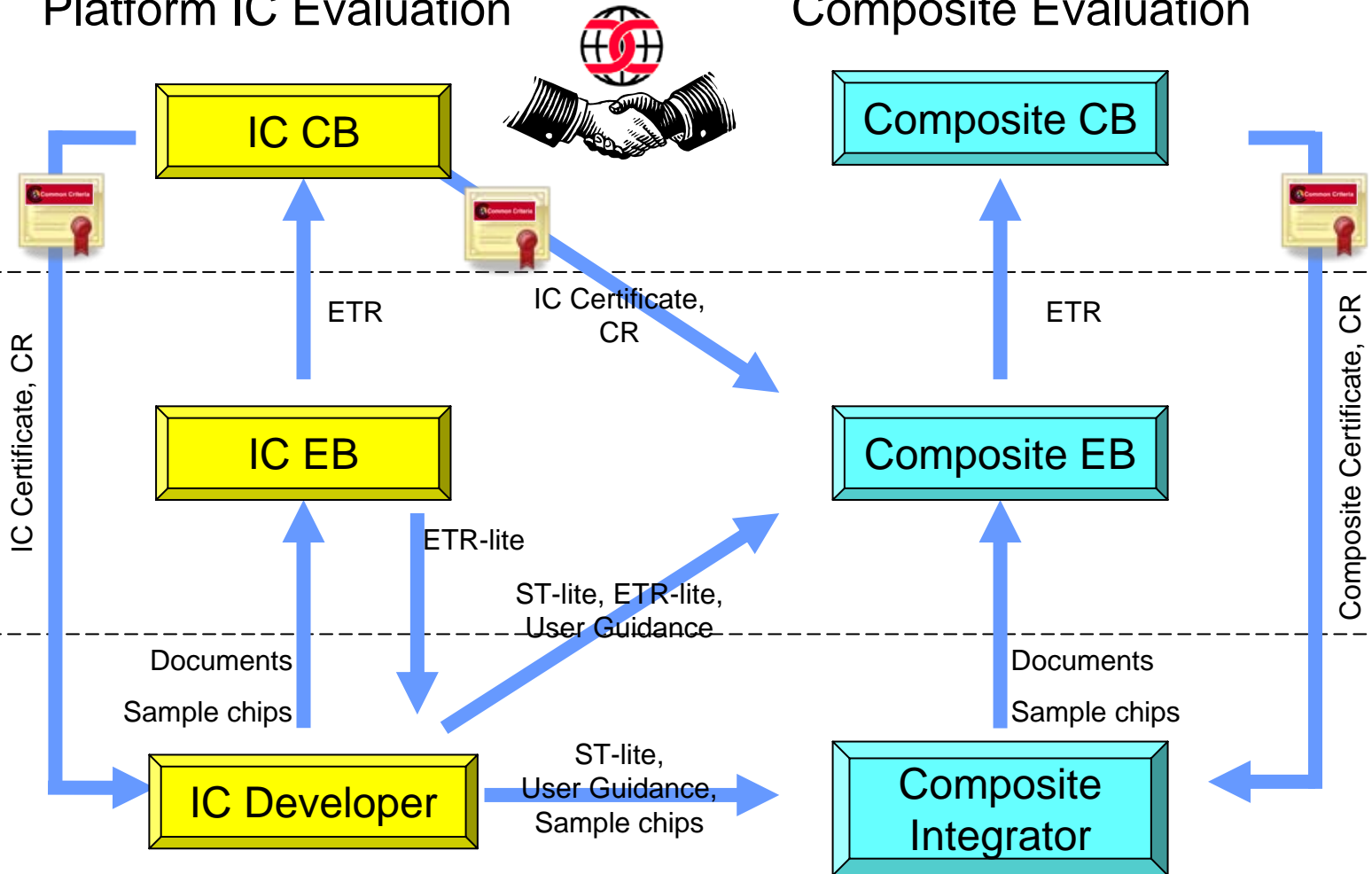
Platform IC Evaluation

Composite Evaluation

Certification Body (CB)

Evaluation Body (EB)

Developer

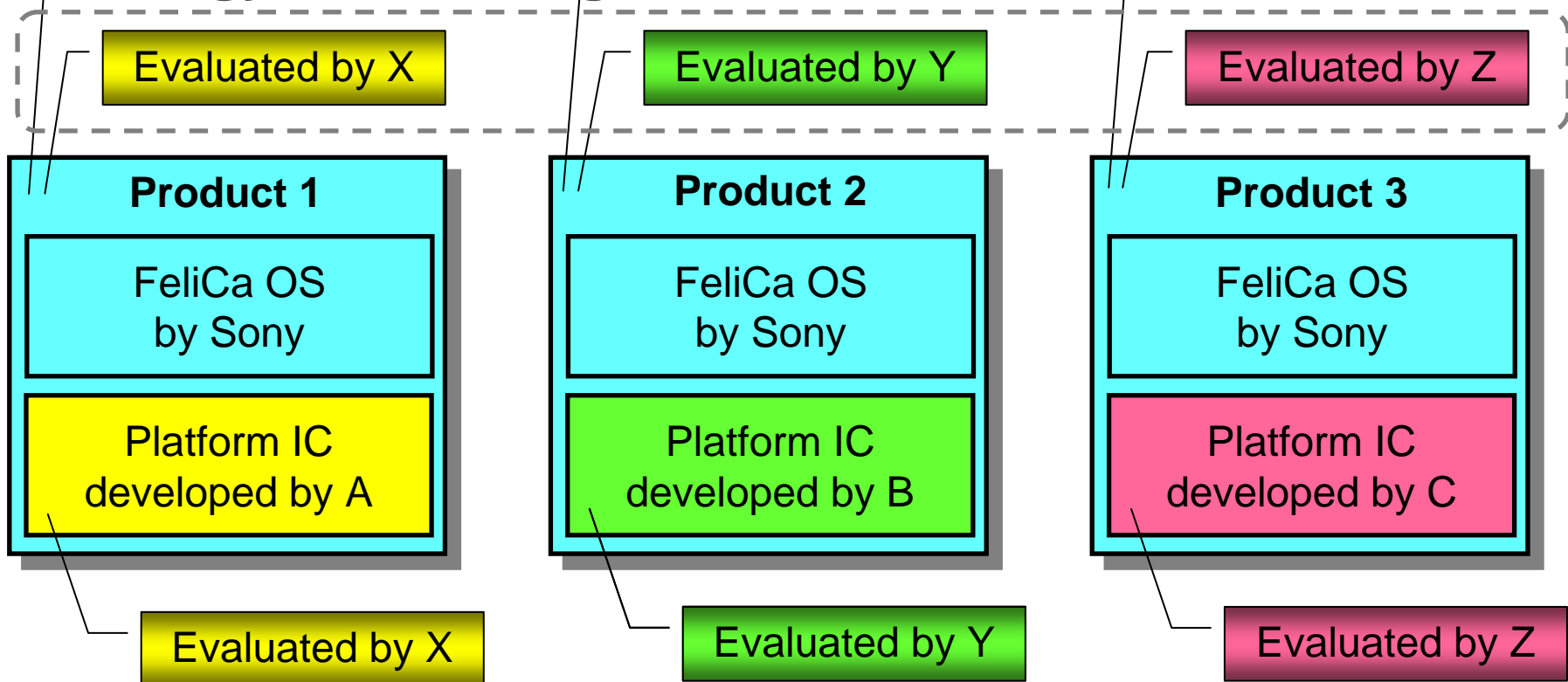




■ Strategy 1: Choosing the same EB for Composite



■ Strategy 2: Choosing the same EB as Platform IC



Strategy: Pros and Cons



	Same EB for Composite TOE	Same EB as Platform IC
Relationship with EB	Good	Needs effort for new EB
Access to IC evaluation result	Needs effort	Easy
Reuse of evaluation documents	Possible	Partially possible
Reuse of evaluation results	Possible	New report
EB's knowledge of TOE	Accumulated	From the beginning
Evaluation cost	Less (Delta evaluation)	Standard (New evaluation)
Evaluation duration, OS	Short	Long
Evaluation duration, IC (AVA)	Long	Short
Parallel evaluation (for some products)	Difficult	Possible
Outcome of evaluation	Similar result? Deep result using accumulated knowledge?	Similar result? Fresh result from different point of view?



- Sony would like to work continuously with several EBs and CBs.

- View point: QCD
 - Quality: productive evaluation results to improve future products
 - Same EB can provide deep feedback.
 - Different EB can provide fresh feedback.
 - Cost: lower evaluation cost
 - Using same EB would be better for similar products.
 - There would be little difference for new product evaluation.
 - Delivery: shorter duration for evaluation and certification
 - Using same EB would be better for one product.
 - Using different EBs would be better for multiple products.

- Selection of EB depends on the environment:
 - Type of product
 - Work load of EB and CB
 - Evaluation cost and currency exchange rate

- Sony has already established good relationships with five schemes. These relationships and the subsequent experiences are invaluable.

Case Study of Composite Evaluation



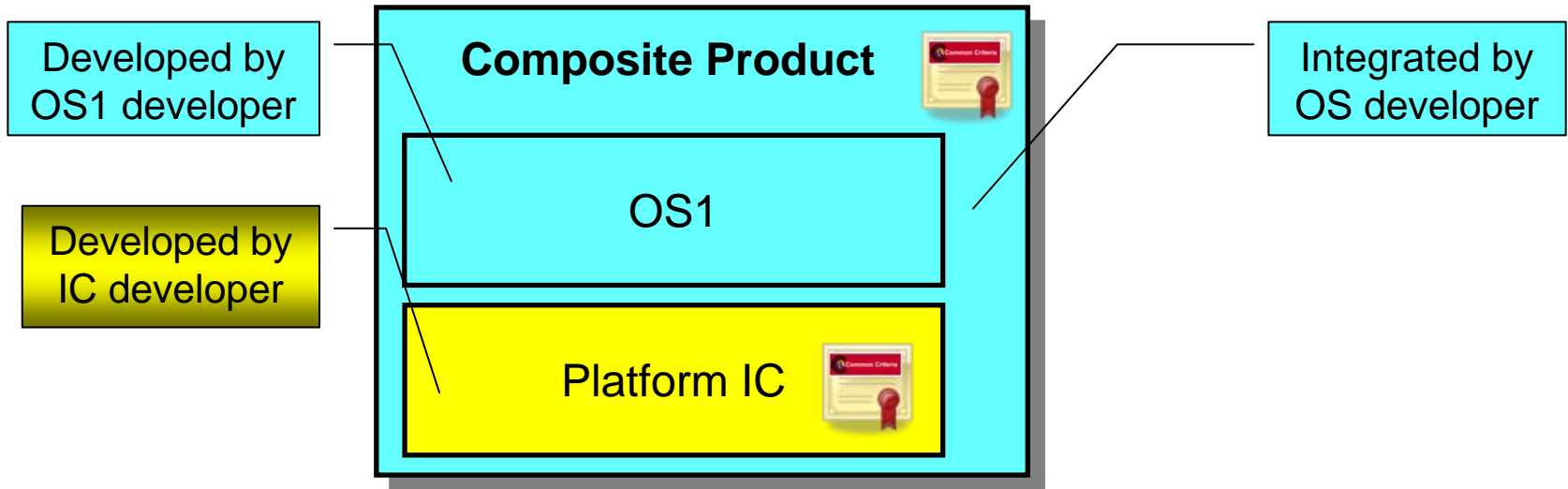
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Case1: Typical Composite Evaluation FeliCa



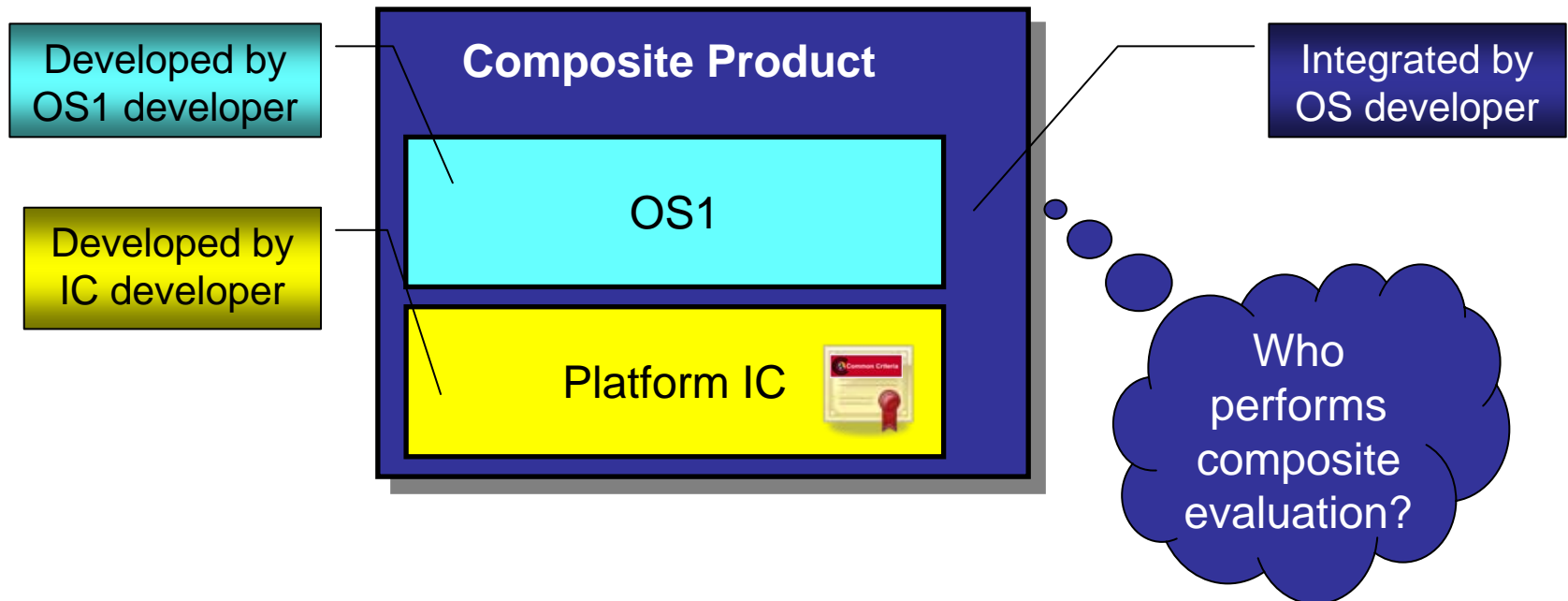
- IC hardware is evaluated by IC hardware developer.
- Composite product integrator is the OS developer.
- Composite evaluation is performed by OS developer using Platform IC evaluation result.



Case2: Independent Integrator



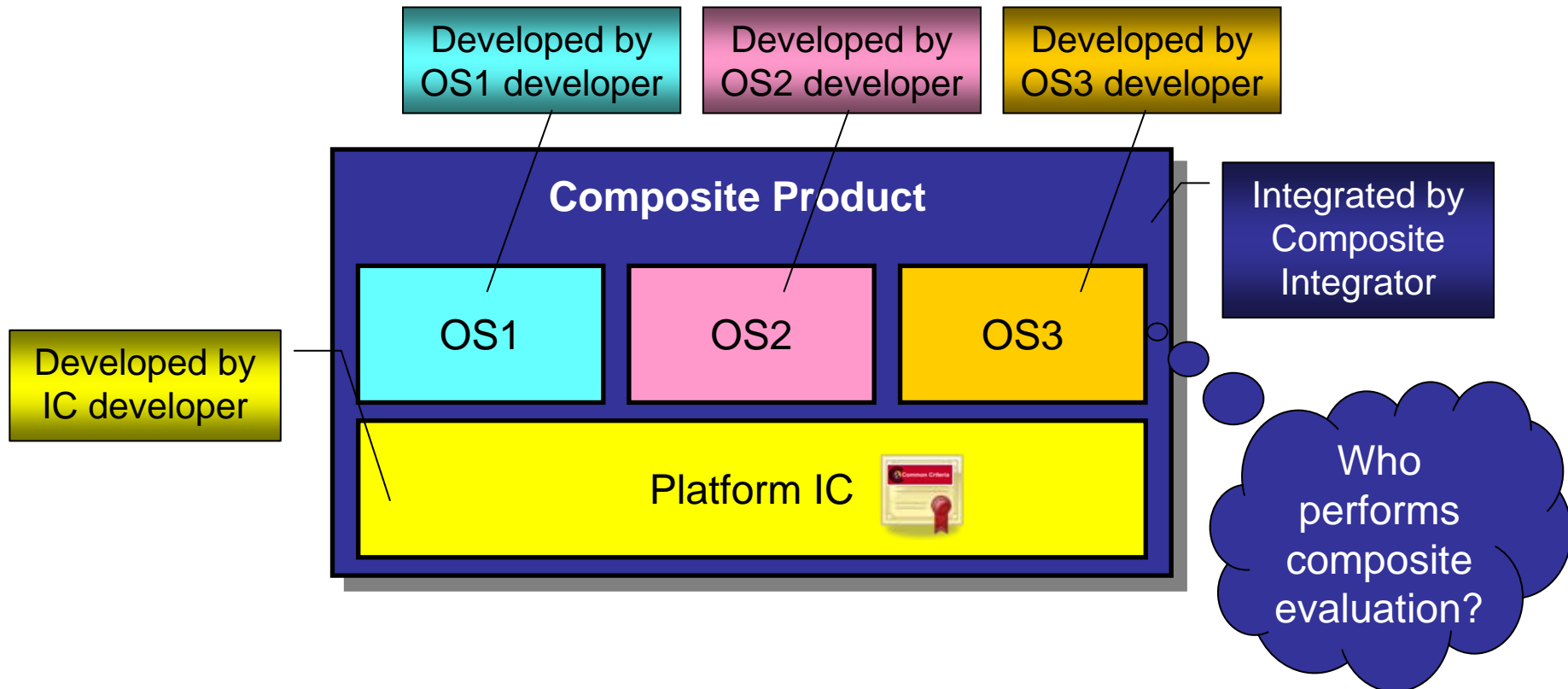
- IC hardware is evaluated by IC hardware developer.
- Composite product integrator is **different** from OS developer.
- OS developer cannot perform composite evaluation because it is not his product.
- It is difficult for Composite Integrator to perform composite evaluation because he doesn't have OS development information.



Case3: Multiple OS

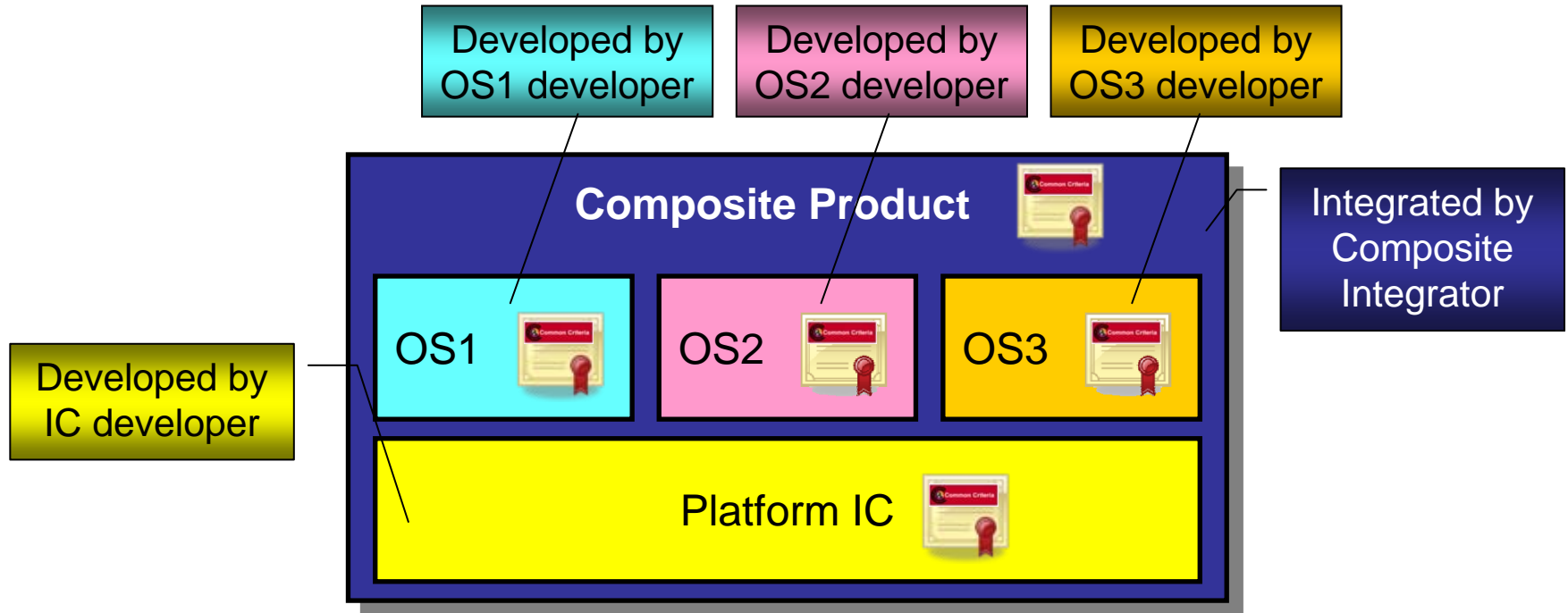


- IC hardware is evaluated by IC hardware developer.
- **Several OSs are implemented** in composite product.
- Composite product integrator is different from OS developer.
- OS developers cannot perform composite evaluation.
- It is difficult for Composite Integrator to perform composite evaluation.





- OS is the IT product of OS developer, who is responsible for its security.
- OS certification can help composite integrator for complex composite product certification.
- For smartcards, OS certification is considered difficult because the security concerns the security functions of the OS and the platform IC.



➡ We need a solution. We hope OS certification scheme is established.

Questions?



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Felica

<http://www.sony.net/Products/felica/>