# Simplifying C-8 certification:

How terminal simulators empower payment schemes

payhuddle®

The payments business is at a crossroads. People used to think contactless payments were a nice feature, but now they expect them all the time.

Contactless payments have increased from 3% of all transactions in 2017 to around 25% by 2023, with billions more expected globally. What is pushing this adoption even further are the mobile wallets, transit systems, and SoftPOS solutions.

However, this growth comes with considerable fragmentation.

There are already more than 20 contactless payment kernels in use around the world. This means that merchants, vendors, and processors have to deal with several different certifications, which makes test planning quite complicated.

For payment schemes, this fragmentation poses a threat to consistency, speed, and cost efficiency across their networks.

This is the reason for the introduction of EMVCo's contactless kernel (C-8), which is a bold step towards a unified global standard.

If adopted at scale, it promises to simplify certification the way contact EMV did years ago.

But the transition won't be immediate: schemes must guide partners through a multi-kernel environment while maintaining interoperability, security, and global acceptance.

This is where terminal simulators assume considerable importance and significance.

**Harshitha (Sales Manager)**, in conversation with **Saba (Marketing Head),** explores how payment schemes can use simulators to navigate the C-8 era.

*Harshitha: Why is EMV contactless certification more complex than traditional EMV contact certification?*

*Saba:*

Think of contact EMV certification as climbing a single, steep mountain. You put in effort, but once you reach the top, you're compliant with all brands.

Contactless, however, is like facing a whole mountain range. Each card scheme, such as Visa, Mastercard, American Express (Amex), Discover, JCB, and UnionPay, has its own proprietary contactless kernel. Besides, you have domestic schemes with their own proprietary contactless kernels.

This meant a single terminal often needed 7 or 8 different kernels to accept all cards.

That's 7 to 8 mountains to climb!

And each comes with its own test plan, nuances, and approval requirements.

Passing tests with one scheme does not guarantee a pass with other schemes. This multi-kernel world has made certification a constant challenge for schemes, acquirers, and vendors.

*Harshitha: That's interesting, and it makes me think of the next question about C-8 kernels. What is EMV contactless kernel 8 (C-8), and why is it important?*

*Saba:*

C-8 is EMVCo's bold attempt at simplifying this jungle. Instead of 20+ kernels globally, the idea is to have one kernel across payment schemes.

If widely adopted, a single C-8 certification could satisfy Visa, Mastercard, Amex, Discover, and others, just like how contact EMV works today.

For schemes, this means:

- Lower certification costs for partners
- Faster global deployments
- Better consistency in payment experiences

*Saba:*

Some of the pain points include:

- You are looking at hundreds of test cases across schemes.
- A single missing bit in a protocol can cause weeks of delays
- Even a small firmware tweak can trigger full re-testing
- Certification per terminal per network can take weeks or months, and a lot of money
- Each network has its own tools, adding inefficiency

When you look at it, certification has often been the biggest bottleneck in rolling out new payment tech.

**Harshitha:** *While I understand that C-8 will alleviate some of these challenges, are there workarounds to expedite the certification timelines, such as a terminal simulator?*

**Saba:**

Imagine if you could replace dozens of physical terminals, test cards, and lab setups with a virtual lab in your browser.

That's what a terminal simulator does.

A simulator like Betel emulates the full EMV terminal environment, which includes chip, contactless, and magstripe functionality, without requiring any hardware.

It lets schemes:

- Test new specifications (like C-8) in-house.
- Run interoperability checks across multiple brands.
- Script and automate test cases instead of manual tapping.
- Share reproducible logs with partners worldwide.

For example, instead of flying terminals across regions, a scheme could give an acquirer a simulator instance to validate transactions remotely. No hardware. No hassle.

*Harshitha: Can you give an example of how a payment scheme has used simulation for C-8?*
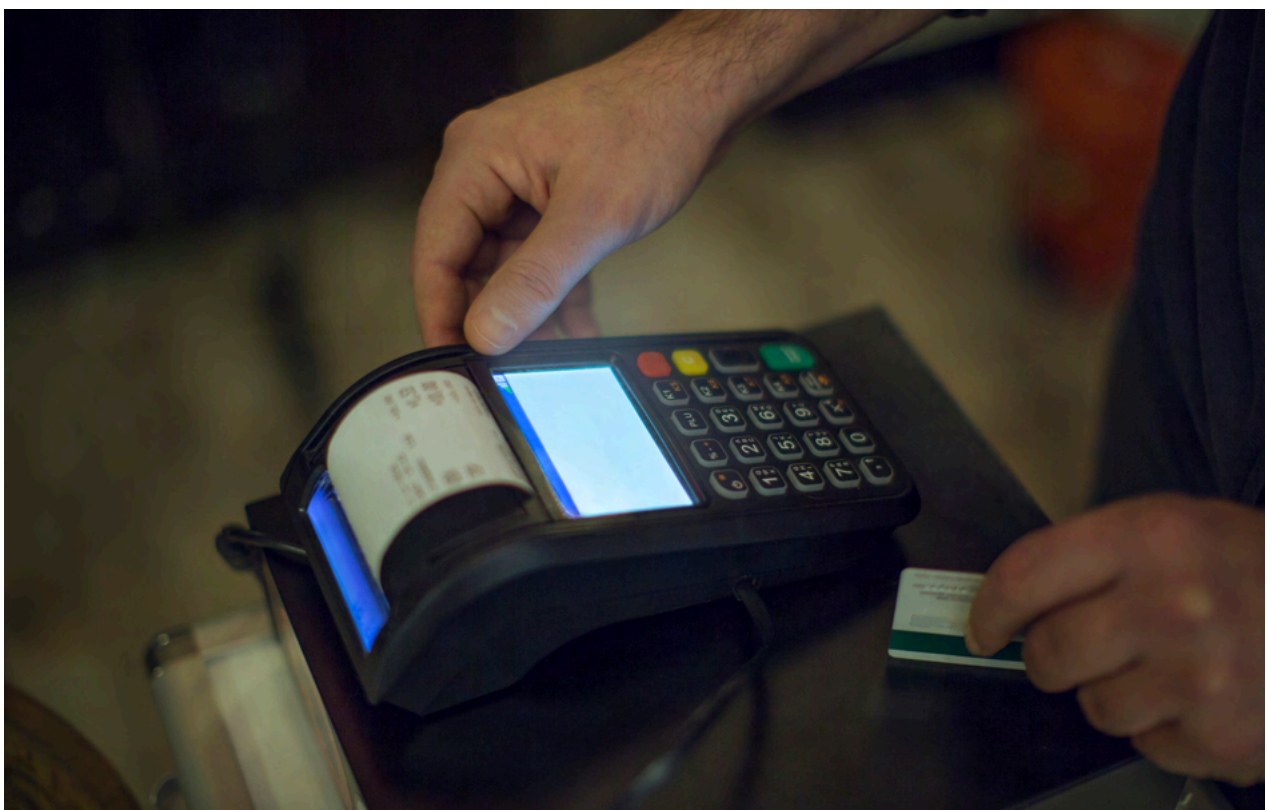
**Saba:**

Yes, one global network used Betel to validate dual-kernel logic:

- If a C-8-enabled card was tapped, the terminal used Kernel 8.
- If a legacy card was tapped, it automatically fell back to the old kernel.

By running thousands of simulated transactions, the scheme confirmed seamless acceptance without breaking older cards.

They accelerated C-8 rollout and even influenced industry test plans with their findings.

That's a first-mover advantage. While others debated, they were already testing and preparing.

**Harshitha:** *What's in it for payment schemes specifically?*

**Saba:**

For schemes, simulators mean:

- Testing and improving new rules (such as ECC security or transit use cases) before making them mandatory.
- Fine-tune test scripts in a repeatable, controlled environment.
- Check that co-badged cards are accepted without waiting for pilots.
- Provide simulator kits to acquirers and merchants, enabling them to go live more quickly.
- Continuously regression-test proprietary kernels or C-8 builds.

In short, it leads to faster innovation, fewer certification bottlenecks, and better partner support.

**Harshitha:** *Does this mean physical testing is obsolete?*

**Saba:**

Not at all.

Schemes will still rely on accredited labs and official test tools for final approvals. But simulators dramatically reduce surprises in the lab.

Think of it like rehearsing before a big performance. You don't show up on stage without practicing.

Simulation ensures that when partners walk into the lab, they're already prepared to pass.

**Harshitha:** *So, what's the big takeaway for payment schemes?*

**Saba:**

The contactless world is shifting from chaos (multi-kernels, fragmented testing, costly delays) to clarity (a unified kernel, continuous testing, and faster certification).

By using terminal simulators, schemes not only address today's problems, but they also prepare themselves to be leaders in the future payments world.

Because in the C-8 era, the winners won't be the ones who test hardest in the lab, but the ones who test smarter and earlier.

# Conclusion

For payment schemes, the path to C-8 isn't just about adopting a new kernel; it's about reshaping how certification and innovation work in the industry.

The old model of testing only in labs, waiting weeks for results, and juggling multiple kernels no longer keeps pace with today's speed of change.

Terminal simulators enable schemes to move faster, support partners more effectively, and establish global standards with confidence.

They turn certification from a bottleneck into a competitive advantage.

While the industry debates when C-8 will become the norm, schemes that embrace simulation are already rehearsing for the future.

In payments, being prepared early is what separates leaders from followers.