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DP248

‘Requirements for DCC Gateway Connection’

Modification Report

Version 0.2

10 October 2023

Corporate member of
Plain English Campaign
Committed to clearer
communication

592



About this document

This document is a draft Modification Report. It currently sets out the background, issue, and progression timetable for this modification, along with any relevant discussions, views and conclusions. This document will be updated as this modification progresses.

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Contact

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1. Summary

This proposal has been raised by Rahul Mudliar from EP Tech Solutions.

The Smart Energy Code (SEC) requires a physical Data Communications Company (DCC) Gateway Connection at the SEC Parties' premises to allow secure data transfer with the DCC. This is the case for all Registration Data Providers (RDPs) as well as all DCC Users. This is not feasible for most emerging market participants who operate on virtual cloud-based infrastructure. This is also preventing established market participants from transitioning to operate on a cloud-based infrastructure, that would not require physical premises.

2. Issue

What are the current arrangements?

What is a DCC Gateway Connection?

SEC Section H 'DCC Services' covers the requirements for both RDPs, and DCC Users on how to interact with the DCC.

It currently states that this requires a DCC Gateway Connection, which by definition, is placed within the organisation's premises. This will require a site visit, equipment costs and can take approximately four months or greater to set up. This is to enable data being sent from the DCC to RDP to be transferred securely.

What is an RDP?

Originally, Gas and Electricity Network Parties were responsible for transferring registration data on their respective networks to the DCC. They had the option to fulfil this requirement themselves or delegate it to another entity to act as the Registration Data Provider (RDP) on their behalf. The DCC is also required to provide Smart Metering data to the RDP, for the relevant premises on their respective networks.

However, as part of the Switching Programme, the Central Switching Service (CSS) Provider has taken over the responsibility of providing registration data to the DCC. Thus, data now only flows from the DCC to the RDP.

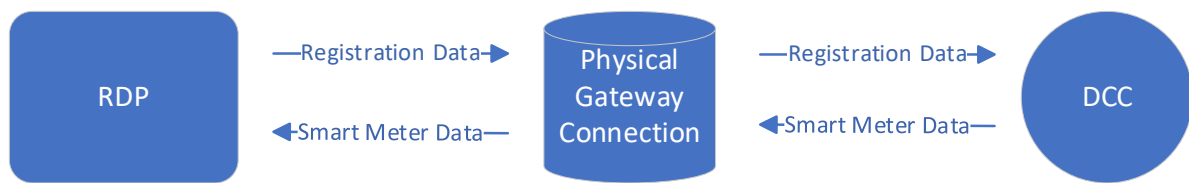
What is the CSS, and how is it linked to the DCC?

The CSS is part of a larger system for managing switching services. The CSS itself consists of two main components, the Registration Service and the Address Management Service. These services work together with the Electricity Retail Data Service and the Gas Retail Data Service to facilitate the switching of services for customers.

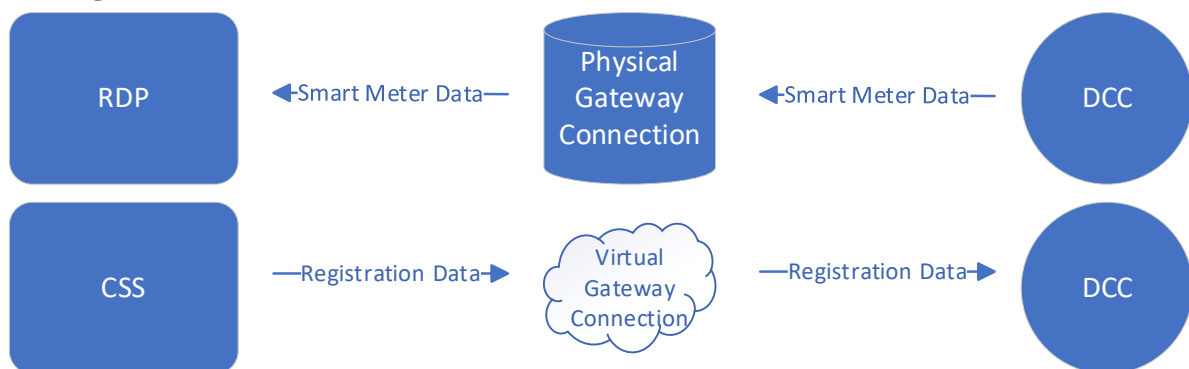
The DCC currently hold the CSS licence however, the CSS part is cloud based and is managed by a CSS Provider on behalf of the DCC.

The below diagram shows the interactions between these entities.

Original Arrangements



Post REC Go-Live Arrangements



What is a DCC User?

A DCC User is any Party who wishes to utilise the DCC system to communicate with smart metering equipment. To interact with the DCC, every User needs to access a DCC Gateway Connection. The SEC currently specifies that a DCC User must have a physical gateway connection.

What is the issue?

The existing code requirements may lead to a waste of resources if the same thing can be achieved via virtual cloud-based connections. When using a physical data centre, there are expenses associated with purchasing hardware, setting up infrastructure, maintaining equipment, providing cooling and power, and ensuring physical security. On the other hand, running a virtual data centre entails fewer upfront costs for hardware, as it relies on shared resources within a cloud provider's infrastructure. Operating costs may also be reduced since the cloud provider typically handles tasks like hardware maintenance and security. Additionally, virtual data centres offer greater flexibility and scalability, allowing resources to be scaled up or down according to demand, thereby optimising cost-efficiency.

When the SEC was first came into effect in September 2013, it did not cater for a virtual cloud-based infrastructure. However, technology has advanced, and the CSS is an example of a secure industry system that is cloud based. The current wording in the SEC creates an obstacle for new entrants who prefer a more cost-effective option rather than building a physical infrastructure to establish transfer of information via their DCC Gateway Connection.

As currently written, the SEC does not allow for direct virtual gateway connectivity between any Party and the DCC.

What is the impact this is having?

New entrants

New entrants to the Gas or Electricity Network markets must continue to act, or contract a third party to act, as the RDP. This requires a DCC Gateway Connection at their premises which can be costly. Their only reason for needing to become an RDP for this is to receive a monthly data file from the DCC of smart metering systems on their network.

New market entrants who wish to become DCC Users face similar issues, although they can benefit more from using the system. Prospective market participants will face challenges in establishing connections with the DCC via a gateway connection due to the impracticality of physical network infrastructure. This includes the amount of time and resources used to put the physical network infrastructure in place. Along with the dedicated floor space the physical infrastructure takes. The shelf life of having a physical infrastructure in comparison to that of a virtual cloud-based infrastructure is also noticeably large.

Existing RDPs or DCC Users

While existing Parties have these connections, the costs of maintaining physical infrastructure and not completely transitioning to a cloud-based gateway can also be great. However, some existing participants are transitioning their infrastructure to online cloud-based platforms. Unfortunately, they cannot fully achieve this while still requiring a DCC Gateway Connection to be physically established. This misalignment of code requirements with the industry trend toward virtual cloud infrastructure hampers innovation, efficiency, and cost-effectiveness for market participants.

Impact on consumers

There are no impacts on consumers from this modification.

3. Assessment of the proposal

Areas for assessment

Can cloud based connections provide the same level of security?

When gateway connections were originally defined, there were no considerations of virtual connections. As technology has advanced it has become apparent that having a virtual cloud-based infrastructure would be beneficial from a cost perspective. It is also argued that they can be considered just as secure. This assumption will need to be tested and agreed by industry.

Observations on the issue

Views from CSC

This modification was presented at the September 2023 CSC meeting. A member of CSC wanted confirmation that the idea of having a virtual gateway connection had been considered previously. It was confirmed this was a new idea and would require testing. Members of the CSC confirmed for the modification to remain in the Development Stage. SECAS advised that the modification will be discussed with the Chairs of the Sub-Committees to discuss if it needs to be brought to them for discussion.

Views from TABASC

Transition process inclusion

Emphasis was placed on the importance of including a transition process within the modification. This process should facilitate Parties wishing to migrate from physical to virtual DCC Gateway Connections, ensuring a smooth transition for all involved.

Timing consideration

A member raised a question regarding the timing of the data packet reception in a virtual cloud-based environment, particularly concerning the Data Service Provider (DSP). Clarification is needed to define when this timing starts in the context of virtual connections.

Extension to all DCC Users

Concerns were voiced regarding the wording of the business requirements, which currently appear to apply only to RDPs. It was suggested that the requirements should explicitly extend to encompass all DCC Users, ensuring uniformity in implementation.

Initial assessment of DCC Impact

This modification will be non-System impacting if it only applies to RDPs, however if the scope is widened to SEC Parties other than RDPs, there will likely be System impacts. It requires SEC updates for the DCC Gateway Code of Connection.

In terms of DCC security assessment, DP248 introduces a Medium-High impact on DCC Security, necessitating thorough assessments of connections, robust identity management, strong encryption measures, vigilant event monitoring, and proactive threat detection. DCC Test Assurance will be needed.

Contractual Agreement Notices (CANs) will be required, with details confirmed in the full Impact Assessment.

Sub-Committee input

SECAS will engage the Chairs from the Operations Group (OPSG), the Technical Architecture and Business Architecture Sub-Committee (TABASC), the Security Sub-Committee (SSC) and the Smart Metering Key Infrastructure Policy Management Authority (SMKI PMA) to confirm what input is

required from these forums. SECAS believes the following Sub-Committees will need to provide the following input to this modification:

Sub-Committee input	
Sub-Committee	Input sought
OPSG	To provide views on operational impacts from changing to a virtual connection
SMKI PMA	Review the SMKI encryption protocols
SSC	To approve the security architecture
TABASC	To review the technical and business architectural approach to this modification

Appendix 1: Progression timetable

Timetable	
Event/Action	Date
Draft Proposal raised	12 Sep 2023
Presented to CSC for initial comment	19 Sep 2023
Business requirements discussed with TABASC	4 Oct 2023
<i>Business requirements developed with Proposer and DCC</i>	<i>19 Sep 2023 – 30 Oct 2023</i>
<i>CSC converts Draft Proposal to Modification Proposal</i>	<i>17 Oct 2023</i>
<i>Modification discussed with Working Group</i>	<i>1 Nov 2023</i>
<i>Modification discussed with SSC</i>	<i>22 Nov 2023</i>
<i>Preliminary Assessment requested</i>	<i>11 Dec 2023</i>
<i>Preliminary Assessment returned</i>	<i>8 Jan 2024</i>
<i>Modification discussed with Working Group</i>	<i>7 Feb 2024</i>
<i>Refinement Consultation</i>	<i>12 Feb 2024 – 4 Mar 2024</i>
<i>Modification discussed with Working Group</i>	<i>3 Apr 2024</i>
<i>Impact Assessment costs approved by Change Board</i>	<i>24 Apr 2024</i>
<i>Impact Assessment requested</i>	<i>29 Apr 2024</i>
<i>Impact Assessment returned</i>	<i>24 Jun 2024</i>
<i>Modification discussed with Working Group</i>	<i>7 Aug 2024</i>
<i>Modification Report approved by CSC</i>	<i>20 Aug 2024</i>
<i>Modification Report Consultation</i>	<i>26 Aug 2024 – 9 Sep 2024</i>
<i>Change Board Vote</i>	<i>25 Sep 2024</i>

Italics denote planned events that could be subject to change

Appendix 2: Glossary

This table lists all the acronyms used in this document and the full term they are an abbreviation for.

Glossary	
Acronym	Full term
CAN	Contractual Agreement Notices
CSC	Change Sub-Committee
CSS	Central Switching Service
DCC	Data Communication Company
DNO	Distributor Network Operator
DSP	Data Service Provider
IDNO	Independent Distributor Network Operator
OPSG	Operations Group
RDP	Registered Data Provider
SEC	Smart Energy Code
SECAS	The Smart Energy Code Administrator and Secretariat
SMKI PMA	Smart Metering Key Infrastructure Policy Management Authority
SSC	Security Sub-Committee
TABASC	Technical Architecture and Business Architecture Sub-Committee

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DP248

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Modification Report

Version 0.3

25 October 2023

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communication

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About this document

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This document also has one annex:

- **Annex A** contains the business requirements for the solution.

Contact

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1. Summary

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The Smart Energy Code (SEC) requires a physical Data Communications Company (DCC) Gateway Connection at the SEC Parties' premises to allow secure data transfer with the DCC. This is the case for all Registration Data Providers (RDPs) as well as all DCC Users. This is not feasible for most emerging market participants who operate on virtual cloud-based infrastructure. This is also preventing established market participants from transitioning to operate on a cloud-based infrastructure, that would not require physical premises.

<NEED TO ADD SOLUTION, IMPLEMENTATION, GOVERNANCE, IMPACTS AND COSTS>

2. Issue

What are the current arrangements?

What is a DCC Gateway Connection?

SEC Section H 'DCC Services' covers the requirements for both RDPs, and DCC Users on how to interact with the DCC.

It currently states that this requires a DCC Gateway Connection, which by definition, is placed within the organisation's premises. This will require a site visit, equipment costs and can take approximately four months or greater to set up. This is to enable data being sent from the DCC to RDP to be transferred securely.

What is an RDP?

Originally, Gas and Electricity Network Parties were responsible for transferring registration data on their respective networks to the DCC. They had the option to fulfil this requirement themselves or delegate it to another entity to act as the Registration Data Provider (RDP) on their behalf. The DCC is also required to provide Smart Metering data to the RDP, for the relevant premises on their respective networks.

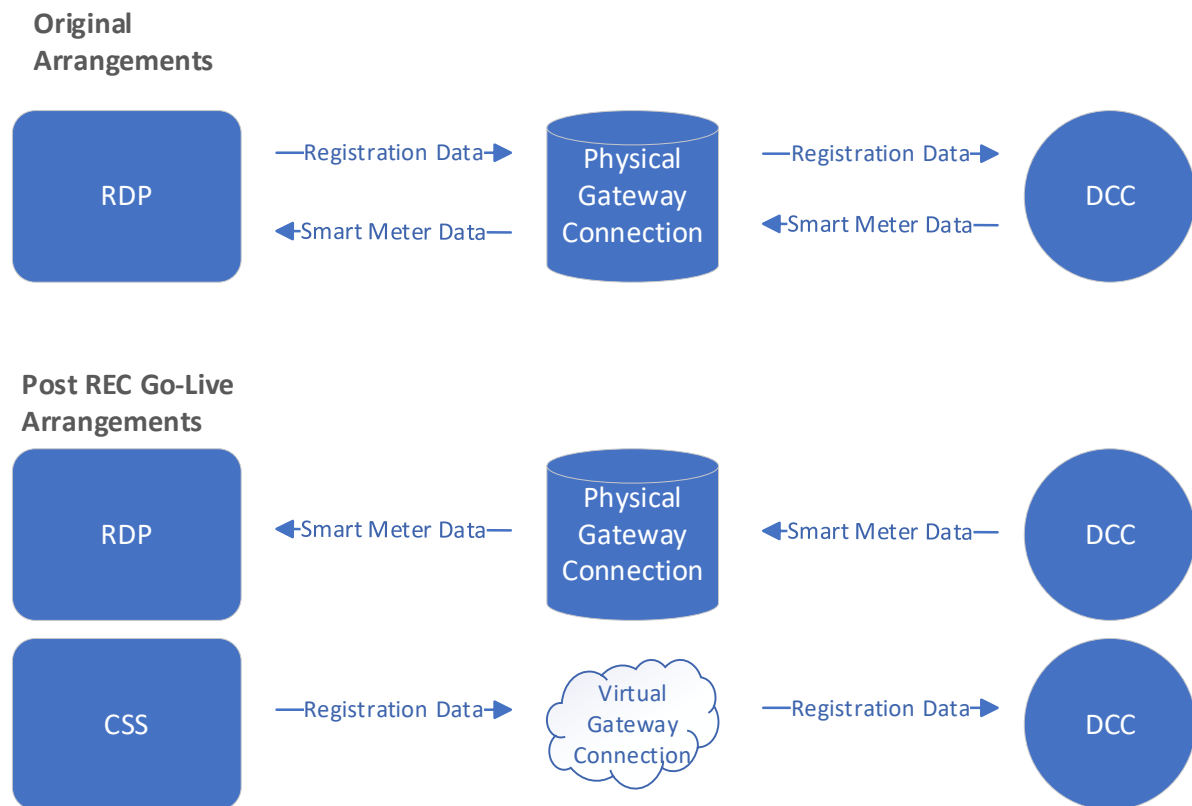
However, as part of the Switching Programme, the Central Switching Service (CSS) Provider has taken over the responsibility of providing registration data to the DCC. Thus, data now only flows from the DCC to the RDP.

What is the CSS, and how is it linked to the DCC?

The CSS is part of a larger system for managing switching services. The CSS itself consists of two main components, the Registration Service and the Address Management Service. These services work together with the Electricity Retail Data Service and the Gas Retail Data Service to facilitate the switching of services for customers.

The DCC currently hold the CSS licence however, the CSS part is cloud based and is managed by a CSS Provider on behalf of the DCC.

The below diagram shows the interactions between these entities.



What is a DCC User?

A DCC User is any Party who wishes to utilise the DCC system to communicate with smart metering equipment. To interact with the DCC, every User needs to access a DCC Gateway Connection. The SEC currently specifies that a DCC User must have a physical gateway connection.

What is the issue?

The existing code requirements may lead to a waste of resources if the same thing can be achieved via virtual cloud-based connections. When using a physical data centre, there are expenses associated with purchasing hardware, setting up infrastructure, maintaining equipment, providing cooling and power, and ensuring physical security. On the other hand, running a virtual data centre entails fewer upfront costs for hardware, as it relies on shared resources within a cloud provider's infrastructure. Operating costs may also be reduced since the cloud provider typically handles tasks like hardware maintenance and security. Additionally, virtual data centres offer greater flexibility and scalability, allowing resources to be scaled up or down according to demand, thereby optimising cost-efficiency.

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As currently written, the SEC does not allow for direct virtual gateway connectivity between any Party and the DCC.

What is the impact this is having?

New entrants

New entrants to the Gas or Electricity Network markets must continue to act, or contract a third party to act, as the RDP. This requires a DCC Gateway Connection at their premises which can be costly. Their only reason for needing to become an RDP for this is to receive a monthly data file from the DCC of smart metering systems on their network.

New market entrants who wish to become DCC Users face similar issues, although they can benefit more from using the system. Prospective market participants will face challenges in establishing connections with the DCC via a gateway connection due to the impracticality of physical network infrastructure. This includes the amount of time and resources used to put the physical network infrastructure in place. Along with the dedicated floor space the physical infrastructure takes. The shelf life of having a physical infrastructure in comparison to that of a virtual cloud-based infrastructure is also noticeably large.

Existing RDPs or DCC Users

While existing Parties have these connections, the costs of maintaining physical infrastructure and not completely transitioning to a cloud-based gateway can also be great. However, some existing participants are transitioning their infrastructure to online cloud-based platforms. Unfortunately, they cannot fully achieve this while still requiring a DCC Gateway Connection to be physically established. This misalignment of code requirements with the industry trend toward virtual cloud infrastructure hampers innovation, efficiency, and cost-effectiveness for market participants.

Impact on consumers

There are no impacts on consumers from this modification.

3. Solution

The proposed solution would allow the RDP files to be received via a cloud-based system. This modification will enable greater flexibility for RDPs while maintaining data security and compliance.

The implementation of this change can be seamlessly integrated into the DCC monthly maintenance. Providing the solution is to apply only to RDPs, the DCC have emphasised that there is a minimal cost to this which they are committed to covering.

There is a larger piece of work on cloud infrastructure which will be part of DSP re-procurement. But the proposer wants this immediately so they can provide the appropriate service to their customers.

4. Impacts

This section summarises the impacts that would arise from the implementation of this modification.

SEC Parties

SEC Party Categories impacted			
	Large Suppliers		Small Suppliers
✓	Electricity Network Operators	✓	Gas Network Operators
	Other SEC Parties	✓	DCC

Network Parties would be directly impacted as they would benefit from the flexibility to receive RDP files via a cloud-based system. The DCC will deliver the RDP files via the cloud based system, rather than through the existing physical connection.

DCC System

There are no DCC System costs associated with this modification.

SEC and subsidiary documents

The following parts of the SEC will be impacted
Section A 'Definitions and interpretations'

Consumers

If this modification is implemented there will be there will be no impacts on consumers.

Other industry Codes

If this modification is implemented there will be there will be no impact on other industry codes.

Greenhouse gas emissions

If this modification is implemented there will be no impact on greenhouse gas emissions.

5. Costs

DCC costs

There are no DCC costs associated with this modification.

SECAS costs

The estimated SECAS implementation cost to implement this as a stand-alone modification is one day of effort, amounting to approximately £600. This cost will be reassessed when combining this modification in a scheduled SEC Release. The activities needed to be undertaken for this are:

- Updating the SEC and releasing the new version to the industry.

SEC Party costs

This modification is not anticipated to result in any costs for SEC Parties, and it is expected to generate cost savings for RDPs. Feedback and input will be collected throughout the Refinement Consultation.

6. Implementation approach

Recommended implementation approach

SECAS is recommending an implementation date of:

- **27 February 2024** (February 2024 SEC Release) if a decision to approve is received on or before 6 February 2024; or
- **25 June 2024** (June 2024 SEC Release) if a decision to approve is received after 7 February 2024 but on or before 4 June 2024.

The implementation approach aligns with the immediate needs for RDPs and supports their transition to a more cost-effective and efficient data exchange system. Should there be any unforeseen circumstances this modification aims to be implemented in the June 2024 SEC Release.

7. Assessment of the proposal

Areas for assessment

Can cloud based connections provide the same level of security?

When gateway connections were originally defined, there were no considerations of virtual connections. As technology has advanced it has become apparent that having a virtual cloud-based

infrastructure would be beneficial from a cost perspective. It is also argued that they can be considered just as secure. This assumption will need to be tested and agreed by industry.

Sub-Committee input

SECAS will engage the Chairs from the Operations Group (OPSG), the Technical Architecture and Business Architecture Sub-Committee (TABASC), the Security Sub-Committee (SSC) and the Smart Metering Key Infrastructure Policy Management Authority (SMKI PMA) to confirm what input is required from these forums. SECAS believes the following Sub-Committees will need to provide the following input to this modification:

Sub-Committee input	
Sub-Committee	Input sought
OPSG	No input required
SMKI PMA	Review the SMKI encryption protocols
SSC	To approve the security architecture
TABASC	Input required to review the technical and business architectural approach to this modification

Observations on the issue

Views from Change Sub-Committee (CSC)

A CSC member queried whether the concept of a virtual gateway connection had been considered previously. It was confirmed this was a new idea and would require testing.

Another CSC member questioned whether the modification's scope encompasses all DCC Users or is limited to just RDPs. SECAS clarified that, based on the suggestion from TABASC, the intention is to extend the scope to include all DCC Users. The DCC emphasized that, as indicated in the impact matrix provided, expanding the scope to include all DCC Users would make the change significantly more complex, while restricting it to RDPs would simplify the process. SECAS relayed the proposer's intention to raising this modification is to have access to RDP files via a cloud based system and indicated an upcoming discussion on scope options them.

Views from TABASC

Transition process inclusion

Emphasis was placed on the importance of including a transition process within the modification. This process should facilitate Parties wishing to migrate from physical to virtual DCC Gateway Connections, ensuring a smooth transition for all involved.

Timing consideration

A member raised a question regarding the timing of the data packet reception in a virtual cloud-based environment, particularly concerning the Data Service Provider (DSP).

Extension to all DCC Users

Concerns were voiced regarding the wording of the business requirements, which currently appear to apply only to RDPs. It was suggested that the requirements should explicitly encompass all DCC Users, ensuring uniformity in implementation.

8. Solution

Proposed Solution

The proposed solution is to enable the DCC to send RDP files through a virtual connection instead of a physical one. This change offers several benefits, such as increased flexibility and cost savings for RDPs. It streamlines the process by aligning the trend toward virtual cloud-based infrastructure.

Excluding all DCC Users

This solution is recommended to apply only to RDPs. The reason for this exclusion is that other DCC Users manage significantly larger volumes of data and are more complex in nature. Including all DCC Users would make the modification more complicated while targeting RDPs ensures a smoother and faster implementation, allowing them to benefit from this change promptly.

Initial assessment of DCC Impact

This modification will be non-System impacting if it only applies to RDPs, however if the scope is widened to SEC Parties other than RDPs, there will likely be System impacts. It requires SEC updates for the DCC Gateway Code of Connection.

In terms of DCC security assessment, this modification introduces a Medium-High impact on DCC Security, necessitating thorough assessments of connections, robust identity management, strong encryption measures, vigilant event monitoring, and proactive threat detection. DCC Test Assurance will be needed.

Contractual Agreement Notices (CANs) will be required, with details confirmed in the full Impact Assessment.

DSP Re-procurement

The DSP re-procurement is a long-term initiative, but it may not address the immediate need to enable cloud-based connections for RDP files. The proposer seeks this modification to provide the appropriate service to their customers.

RDP impacting only

The DCC acknowledges significant impacts in delivering the proposed modification, which would typically be addressed through DSP re-procurement. However, recognising the proposer's need for this modification, the DCC is prepared to provide a solution through a document only modification.

9. Case for change

Business case

Approval of the modification

The proposed solution offers long-term cost savings to RDPs. The adoption of cloud-based connections reduces expenses associated with physical infrastructure.

Against approval of the modification

Views against the modification's approval are limited, primarily due to the concerns about the complexity of extending the scope to all DCC Users beyond RDPs. These concerns stem from the potential challenges and costs associated with this broader implementation. Additionally, some parties may argue that the modification could be adequately addressed through the forthcoming DSP re-procurement initiative. Therefore, this modification will only apply to RDPs which will have no DCC costs associated with it.

Views against the General SEC Objectives

Proposer's views

The proposer strongly supports the approval of this modification. They emphasize the need to enable cloud-based connections for RDPs to enhance operational efficiency and reduce costs. The proposer states that this modification is vital to providing a higher level of service to their customers and aligning with industry trends favouring virtual cloud infrastructure.

Industry views

Industry views will be sourced post Refinement Consultation.

Views against the consumer areas

Views against the modification are limited primarily due to the concerns about complexity of extending the scope to all DCC Users beyond RDPs. These concerns stem from the potential challenges and costs associated with this broader implementation.

Improved safety and reliability

This modification would have neutral impact against improving safety and reliability.

Lower bills than would otherwise be the case

This modification would have neutral impact against lowering bills.

Reduced environmental damage

This modification would have a positive impact against reduced environmental damage as the proposed solution alleviates the need for physical materials.

Improved quality of service

This modification would have a neutral impact against improved quality of service.

Benefits for society as a whole

This modification would have a neutral impact on benefits for society as a whole.

10. Appendix 1: Progression timetable

Timetable	
Event/Action	Date
Draft Proposal raised	12 Sep 2023
Presented to CSC for initial comment	19 Sep 2023
Business requirements discussed with TABASC	4 Oct 2023
CSC converts Draft Proposal to Modification Proposal	17 Oct 2023
<i>Modification discussed with Working Group</i>	<i>1 Nov 2023</i>
<i>Refinement Consultation</i>	<i>6 Nov 2023 – 27 Nov 2023</i>
<i>Modification Report approved by CSC</i>	<i>19 Dec 2023</i>
<i>Modification Report Consultation</i>	<i>27 Dec 2023 – 29 Jan 2024</i>
<i>Change Board Vote</i>	<i>24 Jan 2024</i>

Italics denote planned events that could be subject to change

11. Appendix 2: Glossary

This table lists all the acronyms used in this document and the full term they are an abbreviation for.

Glossary	
Acronym	Full term
CAN	Contractual Agreement Notices
CSC	Change Sub-Committee

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Glossary	
Acronym	Full term
CSS	Central Switching Service
DCC	Data Communication Company
DNO	Distributor Network Operator
DSP	Data Service Provider
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OPSG	Operations Group
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