STATEMENT OF WORK #57:
HOSTING AND DEDICATED TEAM

This *Statement of Work #57* ("SOW #57") is entered into pursuant to, and incorporates by reference all terms and conditions of the *Master Service Agreement* ("Agreement") between Royal Bank of Canada ("Client" or "RBC") and Markit North America Inc. (successor in title and rights to Markit On Demand, Inc.) ("Markit"), effective November 1, 2011 (RBC Ref. #2011132).

This SOW #57 commences on December 1, 2022 ("Effective Date").

This SOW #57 is intended to supplement the Agreement and is subject in all respects to the terms of the Agreement. The parties expressly agree that in the event of a conflict, inconsistency or ambiguity between the terms and conditions of this SOW and the Agreement, the terms and conditions of this SOW shall govern and control as to the scope of services described herein.

As of the Effective Date, the fees and services described in SOW #52, *Hosting and Dedicated Team*, effective December 1, 2020, and all amendments thereto, is superseded by this SOW #57.

1 Scope of Services / Specifications

All websites, tools, APIs, mobile applications, and other services that Markit provides to RBC Direct Investing ("DI") prior to the Effective Date are referred to collectively as the "RBC DI Services," and are described in Sections 1(A)-(G) below. As of the execution of this SOW #57, ongoing hosting and support for the RBC DI Services is included under the Monthly Service Fee, described in Section 6.

The parties expect that additional RBC DI Services will launch during the course of this engagement. In addition, RBC DI may opt to decommission any of the RBC DI Services listed herein during the course of this engagement. The parties will work together to update this list on a regular basis or as needed.

A. Maintenance of Existing Websites

Markit will provide Hosting Services (as defined in Section 10 below) and maintain the existing Quotes & Research and Community websites and all pages within those sites, as described below:

Quotes & Research
- Markets
  - Markets Overview
  - Market Commentary
  - Sectors & Industries
  - Market News (News and Headlines)
  - Technical Analysis
  - Earnings and Events Calendar

- Investment Products
- Quotes & Research
  - Stock Overview
  - Watchlists
    - Quote and quote streaming
    - Performance
    - Fundamentals
  - Global Watchlist Widget
  - Symbol Lookup
  - Detailed Quote for stocks, mutual funds, ETFs, indices, and miscellaneous securities
    - Overview (Stocks, ETFs, indices, MFs, miscellaneous)
    - Charts (Stocks, ETFs, indices, MFs, miscellaneous)
    - News (Stocks, ETFs, MFs)
    - Options (Stocks, ETFs)
    - Fundamentals (Stocks)
    - Research (Stocks, ETFs)
    - Financials (Stocks)
    - Technicals (Stocks, ETFs)
    - Performance (ETFs, MFs)
    - Holdings (ETFs, MFs)
    - Fees & Taxes (ETFs, MFs)
    - Risk (ETFs)
    - Fund Details (MFs)
    - Quote streaming
  - Stock Screener
  - Screeners
    - Stocks (October 2020 release)
      - Saved Screens
      - Create a Screen
      - Predefined Screens
    - ETFs (November 2020 release)
      - Saved Screens
      - Create a Screen
      - Predefined Screens
    - Mutual Funds (December 2020 release)
      - Saved Screens
      - Create a Screen
      - Predefined Screens
  - IPO Center
  - Fixed Income Screener
  - Analyst Pick List
  - Investors Toolkit
    - Learning
    - Tools

Holdings & Home Page
- Holdings Page
  - Portfolio Quotes
  - Portfolio News
  - Asset Mix
- Home Page
  - Market Snapshot
  - MIND (personalized insights)

Community
- Forums
  - Forum Search
- Connections
  - Connection Search
- Investing Summary
- Edit Profile
- See What Others See

  B. Maintenance of Existing Tools

Markit will provide Hosting Services for and maintain the existing Active Trader Dashboard, Portfolio Builder, and Admin Portal tools, as described below:

Portfolio Analyzer

Admin Portal

  C. Maintenance of Existing Mobile Applications

Markit will provide Hosting Services for and maintain the existing mobile applications, as described below:

Mobile Application - Legacy
- Symbol Lookup
- Quote Summary
  - Overview (Stocks, ETFs, Indices, miscellaneous)
  - Chart (Stocks, ETFs, Indices, miscellaneous)
  - News (Stocks, ETFs, Indices, miscellaneous)
  - Options (Stocks, ETFs, Indices, miscellaneous)
  - Level 2 (NASDAQ, TSX, TSXV)
  - Performance (MFs)
- Mutual Fund Overview
- Mutual Fund Performance
- Markets
  - Overview
  - News
- Watchlists
- Alerts

Mobile Application - New

- Quote and quote streaming
- Chartworks
- Watchlists
- Option Chains
- RBC-Options
- RBC-Quote
- RBC-Charting
- RBC-Inspired Investor
- RBC-Recent Symbols
- RBC-Direct Investing Detailed Quote
- RBC-Xref
- RBC-Direct Investing Community
- RBC-Trading Central Technical Insight
- RBC-Direct Investing
- RBC-News

  D. Maintenance of Existing APIs

Markit will provide Hosting Services for and maintain the existing APIs, as listed below:
- Equity Quote and quote streaming
- Intraday Chart
- PMAG
- Level 2
- Store Article Content
- Get Community Thread Url
- Get Post Count
- Option Quote
- Option Chains
- Ivr Watchlist
  - Get All Watchlist
  - Get Watchhlist
  - Get Watchlist By Id
- Submit Trade
- Cancel Trade
- Get Transactions
- Markitify Trade
- Session Kill
- Trading Switch Flags
- 10k Chart
- Price Chart
- Mutual Funds Price Chart
- Get Events List
- Get S&P Reports Manifest
- DI Options Chart
- News Search
- Symbol Lookup
- Symbol Rollover
- Investing
  - Add To Watchlist
  - Remove From Watchlist

- o Edit Watchlist
- Trading Dashboard (note: to be decommissioned 2021)
- Add To Watchlist
  - o Remove From Watchlist
  - o Edit Watchlist
  - o Symbol Lookup
- APIs to interface with Sprinklr
- Create Screen Get Matches (Stocks, ETFs, and Mutual Funds)
- Screen Results Get Results (Stocks, ETFs, and Mutual Funds)
- Get Chart (Advanced Chart)
- RBC API Catalog
  - o Charting
  - o Direct Investing
  - o Direct Investing Community
  - o Direct Investing Markets
  - o Direct Investing Detailed Quote
  - o Inspired Investor
  - o News
  - o Options
  - o Quote
  - o Quote streaming
  - o Recent Symbols
  - o Xref
  - o Trading Central Technical Insight
  - o MIND (personalized insights)

E. Quote Usage and Aggregation Services

Markit shall continue to provide Client with: daily ingestion and processing of RBC quote usage files; aggregation with Markit-sourced quote usage data; monthly usage report for each exchange to RBC; and periodic usage reports for real time quotes highlighting aggregation at the client, security, and exchange level.

F. Notifications Project

Markit will provide RBC DI with daily data files on a variety of pre-determined data points to allow RBC to send out targeted notifications to clients.

G. Dedicated Team

Markit will provide a team of 15.5 dedicated Full-Time Equivalent ("FTE") resources ("Dedicated Team") to support the RBC DI account. An FTE is defined as one or more employees contributing one hundred thirty (130) hours per month. The Dedicated Team will provide maintenance and enhancement services for previously launched RBC DI Services, as well as work on new initiatives as directed and prioritized by RBC DI. Markit will make best efforts to ensure that all projects done by the Dedicated Team comply with

Accessibility for Ontarians with Disabilities Act ("AODA") requirements i.e. WCAG 2.0AA certification.

Markit personnel may be based in the following Markit offices: Boulder, Colorado, United States; London, Ontario, Canada; Noida, India offices; remote locations the United States, Canada and India.

2 Browser Support

Markit will provide support for the RBC DI Services in the following browsers:

OS	Browser
Windows	Edge
Windows/Mac	Firefox
Mac	Safari
Windows/Mac	Chrome

Markit will make reasonable efforts to support the most recent browser versions as they become available. Legacy versions will be retired in due course.

3 Redundancy

The RBC DI Services will be fully operational in all of Markit's managed data centers.

4 Reporting

Markit will provide our standard reporting packing with the RBC DI Services are running in production.

5 Client Responsibilities

Client will be responsible for licensing and providing all data, content, and fonts required for this project, other than as described in Section 6 below. Markit can recommend and make introductions to appropriate providers, but Client will be responsible for all agreements with and payments to such providers.

6 Monthly Service Fee

The Monthly Service Fee for the services subscribed to herein shall be:

a) $ 325,084 USD per month from the Effective Date through December 31, 2022; then

b) $ 397,084 USD per month from January 1, 2023 through October 31, 2024.

For the avoidance of doubt, the Monthly Service Fee shall be calculated as follows:

A. $44,476 USD/month for Hosting Services (as described immediately below and in Section 10) for all RBC DI Services and RBC projects launched during the term of this SOW #52. Hosting services include:

- Hosting in redundant data centers

- 24/7/365 support through Markit's Tier 1 Support Center formerly known as Network Operations Center and located in Boulder, Colorado

- Ongoing data feed support and management for proprietary Client and third party sources

- Access to proprietary systems, including Markit's proprietary symbol cross-reference system

- Security

The Monthly Service Fee includes up to 20 million (20,000,000) page views or direct API requests per week. Should Client traffic exceed 20,000,000 page views or direct API requests per week, the parties shall mutually agree on a revised fee structure to account for increased traffic;

B. For the first month of the Initial Term (December 1, 2022 – December 31, 2022), $279,000 USD/month for the Dedicated Team of 15.5 FTEs to support new development efforts and maintenance of existing sites;

C. For the rest of the Initial Term (January 1, 2023 – October 31, 2024), $351,000 USD/month for the Dedicated Team of 19.5 FTEs to support new development efforts and maintenance of existing sites;

D. $ 1,333 USD/month pass through for Acquire Media Feed #1 (North American Press Release Package, Business Wire, PR Newswire, PrimeNewswire, Market Wired, Canada Newswsire, Market Wired Canada) and Feed #2 (GlobeNewswire Canada, Accesswire, Newsfile, TheNewswire.ca, Filing Services Canada).

E. $275 USD/month pass through to Cannex for NAV data for Canadian mutual funds.

7 Term

This SOW shall commence on the Effective Date and remain in effect for one (1) year and eleven (11) months thereafter ("Initial Term"). Following the Initial Term, RBC has the right to renew this SOW under the same terms and conditions for a maximum of one (1) period of one (1) year ("Renewal Term") by providing 30 days' notice to Markit. Renewal is subject to increase in fee by a percentage no greater than the lesser of (i) 5% and (ii) the average CPI for the 12 months ending two months before the date of the increase.

Notwithstanding anything else in this SOW, RBC may at any time end this SOW for convenience at its sole and absolute discretion. This ending will be effective 180 days after RBC provides notice to Markit.

8 Increase or Decrease in Size of Dedicated Team

Client may elect to increase or decrease the number of resources on the Dedicated Team by providing Markit 60 days' written notice; email shall suffice for this purpose.

Should RBC wish to increase the number of Dedicated Team resources, the fee for incremental Dedicated Team members above the original number of FTEs per Section 6 shall be 18,000/FTE/month, regardless of the number of FTEs.

Should RBC wish to decrease the number of Dedicated Team resources, the savings shall be $18,000 per FTE per month.

For those projects for which Client does not want to utilize the Dedicated Team, separate SOWs may be issued on a one-time basis. Continued Hosting Services and maintenance related to such projects may be governed under the terms of this SOW, and this SOW may be amended to reference newly-launched projects.

9 Change Management

Markit reserves the right, in its sole discretion, to make changes and enhancements to the equipment and software used to provide the services from time to time to maintain operations and as required for problem management and/or system security. Markit will use commercially reasonable efforts to implement changes during non-peak hours, except for changes required for emergency purposes, which may be made at any time. To the extent reasonable and commercially practicable, Client will be notified in advance of any expected outages.

10 Hosting Services

"Hosting Services" means providing, either by Markit or a third party hosting provider selected by Markit, the infrastructure, including hardware, sortware, and communications lines and the services necessary to run and maintain the RBC DI Services for remote access from any location by any customer, advisors, employees, consultants and suppliers of RBC and its Affiliates and any other third parties (collectively, the "Users") requiring access.

Markit will provide the Hosting Services to Users 24 hours a day, 7 days a week, subject to the provisions of this SOW.

Per Markit's Business Continuity Plan, Markit shall be capable of resuming the Hosting Services, after they have been interrupted to any material extent, within 24 hours, barring any incident that does not allow Markit to resume services within this timeframe. To the extent Markit has

redundant back-up systems, the Business Continuity Plan will be capable of enabling Markit to resume providing the Hosting Services immediately.

11 Ownership of Service Materials

RBC shall have, from their creation, all ownership rights, including but not limited to copyright, in the Services Materials.

"Services Materials" means all items, in any form, whether written or electronic, produced by Markit solely and exclusively for Client in performing the Services under this Statement of Work. These items include without limitation specifications, diagrams, flowcharts, data, web page designs and documents. Markit waives any moral rights that it may have in the Services Materials at law (including but not limited to the Copyright Act, Canada) or in equity. Markit may use the Services Materials only to perform its obligations under this Statement of Work.

12 Representations and Warranties

Each party represents and warrants that: (i) when executed and delivered, this SOW shall constitute the legal, valid, and binding obligation of such party, enforceable against it pursuant to its terms; (ii) it shall comply with all applicable federal and state laws, regulations, and statutes in the performance of its obligations hereunder; (iii) it has full power and authority to enter into and perform its obligations under this SOW; (iv) it has obtained all necessary corporate approvals to enter into and execute this SOW; and (v) its performance under this SOW does not and shall not conflict with any other material agreement or obligation to which it is a party or by which it is bound.

13 Invoices

All invoices for MARKIT services shall be sent to the following representative of Client:

Curtis Ryan, Director, Initiatives & Implementation
155 Wellington St W – 19th Floor

Toronto, On
Phone: 416-974-0054
Email: Curtis.ryan@rbc.com

14 Service Level Agreement

Please see Exhibit A for details of the Service Level Agreement ("SLA").

15 Security

Markit represents and warrants that it has policies and procedures and systems reasonably designed to detect, prevent and respond to cyberattacks to ensure (i) the confidentiality and security of Client's Confidential Information including by limiting, tracking and monitoring access to Client's Confidential Information by Markit Personnel and preventing and detecting a Security Breach; (ii) protect Client's Confidential Information against loss, destruction, unintended alteration, or any anticipated threats to security or integrity; (iii) prevent and detect unauthorized access by third parties to its computer software, systems, programs and files, including through network penetration testing by an external vendor; and (iv) otherwise prevent and protect against unauthorized access to or use of Client's Confidential Information in its possession or transmitted to or from its computers or systems. Markit will provide training to appropriate employees with respect to cybersecurity and monitoring compliance with its cybersecurity policies and procedures. Further, Markit agrees that it will promptly notify the client of any cybersecurity breach which may affect the duties of Markit under this SOW and the Agreement. Markit is responsible for Security Measures and for the prevention of Security Breaches relating to Markit Systems and Client Data. Markit must at all times in the performance of its obligations under this SOW comply with and meet or exceed all Industry Security Standards and applicable Law described below.

"Industry Security Standards" means security measures, practices and procedures prescribed in at least one of the following (each as may be updated, modified or replaced from time to time):(a) ISO / IEC 27000-series- see https://www.iso27001security.com/; and/or (b) COBIT [5] [2019] – http://www.isaca.org/cobit/; and/or (c) Cyber Security Framework – see http://www.nist.gov/cyberframework/.

Security Incident Breach Report. In the event of a Technology or Security Incident, Markit will: (i) notify Client immediately (and in any event within 24 hours of becoming aware of such Incident) by telephone and in writing at the address provided for such purpose in the SOW or otherwise designated by Client in writing, including a description of the incident (an "Incident Report"); (ii) assist Client in the management of any consequences arising from it; (iii) take any reasonable steps necessary to mitigate any harm resulting from it; (iv) take appropriate steps to prevent its recurrence and notify Client of those steps; and (v) notify Client in advance of making, and provide Client with a copy of, any media release regarding the Technology or Security Incident. Upon receipt of the Incident Report, Client may request, and Markit will provide as soon as possible, such additional information as is available to Markit (and persons Markit engages in relation to the investigation of the Technology or Security Incident) concerning the Technology or Security Incident, including as is reasonably required by Client to satisfy its regulatory reporting requirements ("Incident Reporting Information"). If any Incident Reporting Information is not available when requested, Markit will so indicate and will provide best known estimates and all other details available at the time. Markit will provide regular updates to Client until all Incident Reporting Information has been provided or the Technology or Security Incident is contained or resolved. Nothing in this section 15 limits any

other obligation in the SOW, a service level agreement, or other agreement of the parties, for Markit to notify Client and take other action in connection with an incident impacting Client's Confidential Information or the provision of Services.

Penetration Test. Please see Exhibit B for procedure of Penetration test on RBC DI Services and RBC projects by Markit.

16   Accessibility

"Accessibility Guidelines" means the Web Content Accessibility Guidelines ("WCAG") for digital technology, as published by the Web Accessibility Initiative ("WAI") of the World Wide Web Consortium ("W3C"), at the version and conformance level required by the legislation in effect in any jurisdiction in which Client operates that digital technology. Legislation governing the WCAG includes but is not limited to, the following: the Accessibility for Ontarians with Disabilities Act ("AODA"), the regulations set forth by the Accessible Canada Act ("ACA") and the Americans with Disabilities Act of 1990 ("ADA"). If the WCAG are not part of the legislation for any jurisdiction in which Client operates the digital technology, the conformance level for that jurisdiction will be deemed to be Level AA under the latest WCAG version.

Conformance with Accessibility Guidelines. Markit warrants that the services work performed by Dedicated Team   will continue to comply with the Accessibility Guidelines for the duration of the Initial Term of this SOW.

Markit will perform an annual audit of adherence to Accessibility Guidelines for any services or work performed for the Client, at no additional cost. Markit will provide to Client a report describing the findings of the annual audit within 30 days of completion of audit. If the audit results in any gap to adherence to Accessibility guidelines or Accessibility Deficiencies. Markit will modify the services or work at no additional cost to the Client to correct the Accessibility Deficiencies or the gap in Accessibility Guidelines, in accordance with an implementation plan to be agreed upon with Client. All such remediation work will be performed by the Dedicated Team and Client will need to prioritize this work against other projects.

ACCEPTED	ACCEPTED
MARKIT NORTH AMERICA, INC.	ROYAL BANK OF CANADA
SIGNATURE E-SIGNED by Catherine Allegra on 2022-11-29 07:19:45 EST	**SIGNATURE** E-SIGNED by Lori Darlington on 2022-11-28 13:22:28 EST
PRINT NAME Catherine Allegra	**PRINT NAME** Lori Darlington
TITLE Global Head, Markit Digital	**TITLE** President & CEO, RBC Direct Investing
DATE OF SIGNATURE 2022-11-29	**DATE OF SIGNATURE** 2022-11-28
	ACCEPTED ROYAL BANK OF CANADA
	SIGNATURE E-SIGNED by Erica Nielsen on 2022-11-28 22:34:21 EST
	PRINT NAME Erica Nielsen
	TITLE SVP, Personal Savings and Investments
	DATE OF SIGNATURE 2022-11-28

Exhibit A to SOW #57: Service Level Agreement

1) Definitions

1.1. **Credit(s):** Percentage of monthly fee to be reimbursed to Client by Markit based on failure to meet established metrics.

1.2. **Designated Technical Contact:** Individual(s) (employed by Client) whom Markit will contact in the event that Markit becomes aware of any issue with the Customized Solution.

1.3. **End User:** The ultimate user of the Customized Solution in a production environment.

1.4. **Incident:** Any issue that prevents the Customized Solution from functioning as intended in a production environment.

1.5. **Incident Response:** Markit's standard process for handling Incidents, including internal and external communication, documentation and resolution.

1.6. **Incident Manager:** Markit staff trained in Incident Response; capable of coordinating Incident investigation and responsible for communicating technical details to Client and Markit staff.

1.7. **Project Manager:** The individual at Markit acting as liaison between Markit and Client.

1.8. **Third Party:** Any service, data or content provider that is neither the Client nor Markit.

1.9. **Uptime:** The percentage of time during a calendar month that the Customized Solution is available.

2. Response and Escalation Services

2.1. Markit will respond to any and all Incidents, requests for maintenance, support services escalations, or queries via its Tier 1 Support Center ("Tier 1") 24 hours a day, 7 days per week, 365 days per year. Tier 1 can be reached at MOD-NOC@ihsmarkit.com or +1.303.583.4308. Response to any escalation will be from a Technical Incident Responder on the Tier team and not an automated reply.

2.2. Upon notice of any Incident related to any part of the services provided by Markit to Client, Tier 1 personnel will initiate the Incident Response procedure and provide the Markit tracking ticket number within 15 minutes. Tier 1 will respond within 15 minutes of receiving notice of the Incident, regardless of severity level.

2.3. For all issues classified "Sev 1 –Total Outage" or "Sev 2 – Major Outage" as per Section 2.5 below, Tier 1 will contact an Incident Manager in conjunction with creating the initial tracking ticket. The Incident Manager will join the investigation within 15 minutes during Markit's core support hours (24 hours a day, Monday through Friday, excluding U.S. holidays) and within 30 minutes otherwise (including weekends). The Incident Manager will provide Client with proactive status updates via email or phone.

2.4. Markit will respond to Incidents, requests for maintenance, support service escalations, or queries from Client or approved representatives of Client only. Should an End User contact Markit directly, Markit will (i) instruct the End User to contact Client directly and (ii) request the Project Manager to follow up with Client.

2.5. Incident Severity Determination

2.5.1. Markit will classify escalation severity level for any Incident (whether reported by Client or via Markit internal monitoring alert) according to the following criteria:

Severity Level	Definition
Sev 1 – Total Outage	An Issue that has major widespread effect on all of a Client's End Users.
	Example: Complete inaccessibility or unavailability of the Customized Solution

Sev 2 – Major Outage	An Issue that has significant impact on Client and/or its End Users
	Example: Complete inaccessibility or unavailability of a key page or module within the Customized Solution
Sev 3a – Major Impact	An Issue that affects a single product, service, module, etc., in a meaningful way
	Examples: Multiple data discrepancies or multiple incorrectly calculated data points
Sev 3b – Minor Impact	Any minor service or data degradation or stale non-business critical data
	Examples: Multiple documents or multiple symbols impacted by same data point
Sev 6 – Minor Issue and Inquiries	An Issue has some impact on Client and/or End Users but has no material impact
	Examples: A single data point has discrepancies; a question about a single data source or calculation of a data point.

Note: Sev 4 and Sev 5 issues are reserved for internal issues.

2.5.2. If, as a result of the ongoing investigation, severity is determined to be lower or higher than initially observed, Markit will reset severity level and response expectations.

2.5.3. Incidents caused by a Third Party where that Third Party contracts directly with Markit will be classified and handled the same as Markit-related issues.

2.6. Status Updates and Regular Communication

2.6.1. Markit will provide status updates with the following frequency:

Sev 1 – Total Outage:	Every 30 minutes until Markit identifies the problem and determines a prospective plan for correction in production. Once the problem is identified, Markit will provide Client with the estimated time of completion.
Sev 2 – Major Outage	Every 30 minutes until Markit identifies the problem and determines a prospective plan for correction in production. Once the problem is identified, Markit will provide Client with the estimated time of completion.
Sev 3a – Major Impact	Every 4 hours until Markit identifies the problem and determines a prospective plan for correction in production. Once the problem is identified, Markit will provide Client with the estimated time of completion.

Sev 3b – Minor Impact	Daily updates until Markit identifies the problem and determines a prospective plan for correction in production. Once the problem is identified, Markit will provide Client with the estimated time of completion.
Sev 6 – Minor Outage and Inquiries	Once the problem is identified, Markit will provide Client with an estimated time of completion.

    2.6.2. The Markit Incident Manager will be available to join a bridge line or other such cooperative coordination effort to resolve a Sev 1 or Sev 2 Incident.

    2.6.3. Markit may proactively initiate conference calls or bridge lines where Markit deems it necessary or helpful to resolving any Incident.

  2.7. Markit shall provide Client's Designated Technical Contact with notice of any issue affecting the performance of the Customized Solution of which Markit becomes aware. In the event Markit believes such issue to be the result of an act or omission of a Third Party, Markit shall cooperate with Client and Third Party to restore normal functionality of the Customized Solution in a timely manner.

3. **Uptime Requirement**: Markit will ensure that the Customized Solution will be available at least 99.7% of the time as measured over each calendar month during the Term ("Uptime Requirement").

  3.1. Monitoring Approach: Markit will choose one or more pages of the Customized Solution to monitor in order to determine Uptime. Page selections will be reviewed with the Client to ensure appropriateness. Each page will be monitored continuously from more than one location outside of Markit's network on a round-robin basis at least once per minute. A page fails a monitoring test if two monitoring locations fail to access a page in two successive tries from each monitoring location.

  3.2. Uptime Calculation: Uptime will be calculated at the end of each month based on data provided by Markit's external monitoring provider. A page will be considered unavailable from the time of the first failure until the first subsequent success. All such intervals will be reviewed and validated by Markit. Uptime will then be calculated as the sum of all periods during which the page was available during the calendar month, divided by the total time in the month. One percentage will be calculated per month. Scheduled Maintenance as described in Section 6.1 below shall not be included for purposes of calculating Uptime.

  3.3. Exclusions: Any failure due to an outage of a Third Party will be excluded from the Uptime calculation.

  3.4. Credits: If, in any calendar month during the Term, Uptime falls below the Uptime Requirement, Markit will grant Client a credit for that month based on the table set forth below, calculated as follows: the percentage set forth in the table below multiplied by the Service Fees due for the same period.

Service Level Metric	Uptime	Credit
Uptime	99.70-99.69%	10%
	95.00-99.40%	15%
	95.00% or less	20% and Client shall have the option, at its sole discretion, to terminate this SOW #52

4. **Response Time Requirement**: Markit will ensure that the Customized Solution meets specific targets as set forth below ("Response Time Requirement").

  4.1. Monitoring Approach: Each request will be continuously monitored from more than one location outside of Markit's network on a round-robin basis at least once per minute. Response time will be recorded by Markit's external monitoring provider. Failed responses will not be included in the Response Tim Requirement (failures are addressed by the Uptime Requirement described in Section 3 above).

4.2. Response Time Calculation: Response Time will be calculated at the end of each month based on data provided by Markit's external monitoring provider. The percentage of requests that satisfy the Response Time Requirement shall be the number that completed in less than the associated target time divided by the total number of requests that completed successfully. One percentage will be calculated for each request during the month.

4.3. Exclusions: Any impact due to a Third Party will be excluded from the Response Time Requirement calculation. Compliance with the Response Time Requirement shall not be required during any Scheduled Maintenance period as described in Section 6.1 below.

4.4. Credits: If, in any calendar month during the Term, Markit falls below the Response Time Requirement, then without limiting any other right or remedy to which Client may be entitled as a result of such Response Time, whether under this Agreement, at law or in equity, Markit will grant Client a proportional credit for that month based on the table set forth below, calculated as follows: the percentage set forth in the table below multiplied by the Service Fees due to for the same period. If multiple requests fail to meet the Response Time Requirement in a given month, the total Credits shall be the largest of the individual Credits.

Request and Target	Percentage of Requests meeting Requirement	Credit
Module delivered in 3 seconds or less or less	98.00-98.99% 97.00-97.99% 96.99% or less 96% or less meeting Requirement	5% 10% 15% 20% and Client shall have the option, at its sole discretion, to terminate this SOW #52

5. Reporting

5.1. Markit will provide regular reporting detailing Uptime for the Customized Solution.

5.2. Markit will provide detailed reporting for all Sev 1 – Total Outage or Sev 2 – Major Outage Incidents, including a summary of the Incident and its impact, chronology of actions taken, time to resolution, lessons learned, and opportunities for improvement. Such report will be delivered to Client within five (5) business days of the resolution of the Incident.

6. Maintenance

6.1. Markit will give Client at least five (5) business days prior notice (email to suffice) of any Scheduled Maintenance. Scheduled Maintenance whereby the availability of the Customized Solution is impacted shall occur no more often than once per month, Scheduled Maintenance shall not be included for purposes of calculating Uptime.

6.2. Markit may perform additional unscheduled maintenance as necessary to support the delivery of the Customized Solution. Client will be notified of such maintenance as far in advance as practical. Markit will endeavor to perform additional maintenance activities in such a way as to minimize impact to Uptime. The impact on Uptime as a result of such unscheduled maintenance shall be included for purposes of calculating Uptime.

7. Termination of Service

7.1. Client shall have the right to terminate the Customized Solution upon 30 days written notice if Uptime drops below the lowest percentage identified in the table in Section 3.4 for a period of 3 consecutive months.

7.2. In the event Client exercises such right of termination, no payments will be due to Markit with respect to any periods occurring after the date of termination. If Client has prepaid any monies for periods after the date of termination, Markit shall issue a refund to Client.

Exhibit B to SOW #57: Penetration Test

Definitions

1.   Test Provider

1.1   Markit engages the services of an external party to perform the Penetration Test.

1.2   Markit currently utilizes Trustwave Holdings Inc. as the Test Provider for the performance of the Penetration Test.

1.3   Markit may choose to change Test Providers from time to time for a similar level of service and shall notify RBC at least 30 days in advance of a switch in vendor

2.   Penetration Test

2.1   The Manager Security Testing (MST) penetration test that is performed on the RBC DI Services and RBC projects (to be defined) by the test provider.

2.2   Some Test Providers allow retesting of the same Penetration Test within a given period of time; retesting shall be considered a Penetration Test. At the Test Provider's discretion, retesting may not apply to applications/services/projects that were not included in the initial test.

2.3   Markit currently runs Trustwave Tier 3 application penetration test for the RBC DI Services and RBC projects provided by Markit.

2.4   Markit may choose to change Penetration Tests from time to time after consulation and agreement with RBC.

3.   Procedure

3.1   Markit will perform the Penetration Test biannually during the Initial Term on the date, April 1 and October 1 or the closest business day after these dates. Markit will obtain a quote from the test provider, if needed, and will share it with RBC at least 30 days before the Penetration Test date for RBC approval.

3.2   Estimated price at the time of the effective date is $8,840.00 USD; Markit provides no guarantee for the future price of Penetration Tests.

3.3   Upon RBC's approval of the quote, Markit will schedule the test to be run with the test provider on the dates mentioned in Section 3.1 above.

3.4   Markit will provide the report provided by the test provider to RBC within 10 days of the completion of the test.

3.5   Markit will invoice RBC for the Penetration Test once the test provider report has been sent to RBC.