Backup-as-a-Service

Product E-Book

Technology of People, Innovation & Simplicity

CBTS

TECHNOLOGY SOLUTIONS FOR BUSINESS

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Product Overview

The CBTS Backup-as-a-Service (BaaS) is a managed backup solution consisting of hardware, software, monitoring, and support elements brought together into one solution.

Our BaaS solution strikes an optimal balance between recoverability, reliability and cost effectiveness. Customers can choose an onsite hardware appliance to cache local backup copies that automatically replicate to a second offsite appliance; or configure a solution without local hardware, utilizing a software agent to send data directly to a CBTS data center. Backup-as-a-service includes maintenance and hardware.

This solution consists of the following components:

Infrastructure:

- Cloud Data Center
- Backup Software & Licensing
- Backup Infrastructure
- Backup Storage

Management:

- Team of experienced data protection engineers, process and tools
- Capacity management
- Incident management
- Change management
- Routine configuration management

Benefits

1. **Free up your Internal IT Resources**
    - Letting CBTS experts manage your backup needs frees up your team to focus on adding value to your organization.
    - No need to purchase and manage additional storage and compute resources for backup. CBTS will manage it all for you.
2. **Preserves Capital**
    - Turns CAPEX to OPEX - The utility service model eliminates large capital expenditures and allows customers to pay a single monthly fee. Only pay for what you use.
    - Fewer hardware and software upgrades and maintenance, compared to traditional backup solutions, lower the customer's total cost of ownership (TCO).
3. **Full Flexibility**
    - Utilize backup resources as you need them. Purchase only the backup resources that you need without spending more.

- Our 'as-a-Service' model allows for predictable spending based on your overall storage requirements.

4. **Excellent Reliability**
    - CBTS is known for our reliability. Our highly-trained data protection engineers monitor and manage the environment from our Enterprise Network Operations Center staffed 24 hours a day, 7 days a week, 365 days a year.
5. **Additional Benefits**
    - Our solution makes it easier to meet compliance requirements, such as those to which financial institutions must adhere.
    - Our solution is supported by a substantial foundation of industry-leading companies. It is well tested and proven to work in almost any environment.
    - All data is encrypted in-flight and at-rest.
    - Capable of both system state and file level restores.

Pricing Overview

This service is priced as follows:

- Monthly billing is based on the overall amount of data consumed per retention model defined.
- Optional onsite appliance is available and priced by size (large or small) and number of nodes in the solution, also billed per month.
- License fee is charged per server/month

Product Details

Description

Our Backup-as-a-Service solution features two editions that protect different types of environments:

1. Virtual Edition – Ideal for 100% virtual workloads
2. Enterprise Edition – Ideal for environments containing both physical and virtual workloads

Our BaaS solution also has software and hardware components that would apply based on your unique back scenario:

Software-based

For mid-sized, branch offices or smaller organizations, this service employs a backup solution with no local hardware appliance. The service is invoiced per GB of data stored on the CBTS backup appliances.

The customer will provide CBTS access to install the backup software provided by CBTS depending on requirements. The software performs the scheduled backups over the Internet to a CBTS data center. All data transmitted is encrypted in-flight, utilizing existing customer data transport infrastructure and off-hours Internet connectivity, when there is a higher availability of bandwidth (each night between 6 p.m. and 8 a.m.)

Hardware-based

For larger enterprises, CBTS offers a backup solution with faster recovery and higher performance. This service utilizes a dedicated backup appliance on the customer's premises. The hardware / software package is provided at a monthly cost to the customer. CBTS can provide the hardware and software to be installed at the customer's site, and the hosted backup infrastructure in a CBTS data center that is used for off-site replication of backup data.

The customer assumes responsibility for network infrastructure to the CBTS network including, but not limited to, network availability, maintenance, monitoring and troubleshooting of all hardware residing at the customer's site.

Retention, Frequency, Duration Available

There are two standard retention options:

1. **90 days**: Daily backup policy for 14 days, then weekly backup policy for the remaining 90 days.
2. **13 months**: Daily backup policy for 14 days, weekly backup policy for 90 days, then monthly backup policy for 13 months.

Long-term Backup Options

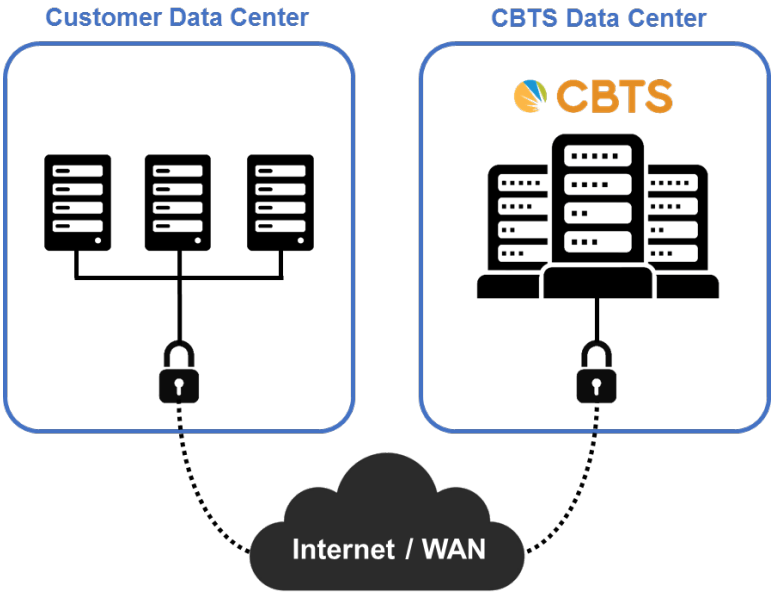
Extended long-term backup options available upon request.

Backup Agents

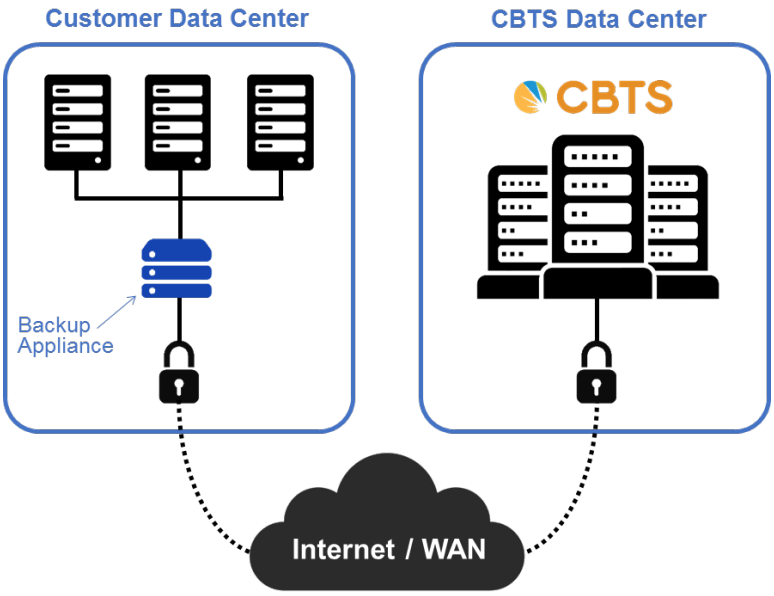
Backup agents are installed on each server where necessary. These agents are optimized for low-impact backup operations and require minimal server resources in order to perform their functions.

Architecture

Remote Backup to CBTS Cloud



Onsite Appliance Replicating to CBTS Cloud



SKU Detail

Product/Service	Description	Charge
Enterprise Onsite Backup Appliance - Storage	This service will provide usage of an onsite Backup appliance, which will be installed at the customer's site. This hardware will be provided at a monthly recurring cost to the customer. CBTS will provide the hardware and software to be installed at the customer site, installation services required to implement the backup hardware and software, and 24 x 7 availability of the off-site hardware and software required for data replication. The customer will provide all necessary floor space, data transport infrastructure, network connectivity/access. The customer assumes responsibility for network infrastructure to CBTS network including, but not limited to, network availability, maintenance, monitoring and troubleshooting of all hardware residing at the customer site.	Monthly
Enterprise Onsite Backup Appliance - Installation	One-time installation fee of appliance and/or software	Once
Virtual Onsite Backup Appliance - Storage	This service will provide usage of an onsite Backup appliance, which will be installed at the customer's site. This hardware will be provided at a monthly recurring cost to the customer. CBTS will provide the hardware and software to be installed at the customer site, installation services required to implement the backup hardware and software, and 24 x 7 availability of the off-site hardware and software required for data replication. The customer will provide all necessary floor space, data transport infrastructure, network connectivity/access. The customer assumes responsibility for network infrastructure to CBTS network including, but not limited to, network availability, maintenance, monitoring and troubleshooting of all hardware residing at the customer site.	Monthly
Virtual Edition Appliance - Installation	One-time installation fee of appliance	Once
Enterprise Cloud Backup (GB) – VM	This service will provide usage of a CBTS-hosted backup solution. The service is invoiced per GB provisioned to the VM. Quantity of provisioned storage is calculated monthly based on high watermark.	Monthly
Enterprise Cloud Backup (GB) – Client	This service will provide usage of a CBTS-hosted backup solution. The service is invoiced per GB of data stored on the CBTS backup appliance(s). Quantity of storage is based on front-end GB and calculated monthly based on high watermark.	Monthly
Virtual Cloud Backup (GB) - VM	This service will provide usage of a CBTS-hosted backup solution. The service is invoiced per GB provisioned to the VM. Quantity of provisioned storage is calculated monthly based on high watermark.	Monthly
Backup Software Fee	Fee that covers proper software licensing for Backup applications per configuration item (CI).	Monthly
		Frequency

How Retention Strategy Impacts Costs

The retention strategy selected has a big impact on the resulting charges. To illustrate this, it helps to look at an example. Assume an organization decides to Backup 10TB of data using our *Enterprise Cloud Backup – Client* offering for a period of 18 months. To simplify, assume also that the amount of storage (100TB) stays constant over that period. Here's how the storage charges would look based on retention plan:

	90-Day Retention				13-Month Retention			
Month	*Period Being Retained*	*Storage Amount*	*Replicated Rate*	*Estimated Cost*	*Period Being Retained*	*Storage Amount*	*Replicated Rate*	*Estimated Cost*
1	1 Month	10TB	$0.08	$800	1 Month	10TB	$0.04	$400
2	2 Months	20TB	$0.08	$1,600	2 Months	20TB	$0.04	$800
3	3 Months	30TB	$0.08	$2,400	3 Months	30TB	$0.04	$1,200
4	3 Months	30TB	$0.08	$2,400	4 Months	40TB	$0.04	$1,600
5	3 Months	30TB	$0.08	$2,400	5 Months	50TB	$0.04	$2,000
6	3 Months	30TB	$0.08	$2,400	6 Months	60TB	$0.04	$2,400
7	3 Months	30TB	$0.08	$2,400	7 Months	70TB	$0.04	$2,800
8	3 Months	30TB	$0.08	$2,400	8 Months	80TB	$0.04	$3,200
9	3 Months	30TB	$0.08	$2,400	9 Months	90TB	$0.04	$3,600
10	3 Months	30TB	$0.08	$2,400	10 Months	100TB	$0.04	$4,000
11	3 Months	30TB	$0.08	$2,400	11 Months	110TB	$0.04	$4,400
12	3 Months	30TB	$0.08	$2,400	12 Months	120TB	$0.04	$4,800
13	3 Months	30TB	$0.08	$2,400	13 Months	130TB	$0.04	$5,200
14	3 Months	30TB	$0.08	$2,400	13 Months	130TB	$0.04	$5,200
15	3 Months	30TB	$0.08	$2,400	13 Months	130TB	$0.04	$5,200
16	3 Months	30TB	$0.08	$2,400	13 Months	130TB	$0.04	$5,200
17	3 Months	30TB	$0.08	$2,400	13 Months	130TB	$0.04	$5,200
18	3 Months	30TB	$0.08	$2,400	13 Months	130TB	$0.04	$5,200

For illustrative purposes only. Actual charges may vary based on specific backup scenario.

Data begins rolling off at this point

As you can see, the charges will vary based on the type of retention selected. The 90 day retention plan yields a monthly charge of $2,400/month starting on month 3, while the 13 month retention plan yields a monthly charge of $5,200/month starting on month 13. This is because the amount of storage being backed up is a sum of the trailing protected storage.

Data also begins to roll off once the retention period has been reached. The decision of a retention strategy is made at the very beginning prior to incurring any charges. Any request to change the backup retention period after this point requires a Contract Change Request which must be approved by the Customer and CBTS.

Virtual Machine Considerations

It is important to note that VM charges are based on the amount of storage *allocated* to the VM. Please be sure that the VM is the right size from the start to avoid paying more for backup than needed.

The following services are included:

Facilities

- Setup and maintenance of space in the data center
- Rack space
- Uninterrupted and conditioned power
- Access management, etc.

Monitoring

- Continual system availability monitoring using standard platform management tools

Backup Administration

- Skilled technicians capable of diagnosing and resolving most service disruptions
- Installing and configuring required hardware and software
- Interfacing with the customer's IT staff, management and external vendors

Network Switching and Firewall Infrastructure

- Cisco firewall and switching infrastructure, maintenance, monitoring, and hardware for all CBTS-hosted backup infrastructure

Advanced Backup Reporting

- Advanced backup reporting portal that allows verification of service levels and recoverability.

Configuration Details:

Customer Prerequisites

- One 1-Gig copper ports per node at the customer location
- Internet bandwidth sufficient to back up the data in 8 hours or replicate in 14 hours

Configuration Constraints

- Any customer site with more than 1.5TB of data must employ the local appliance cache (hardware/appliance-based) solution.
- Dedicated solutions are available, but require the engagement of product management

Service Level Agreements (SLAs)

Availability

- **Planned Availability**: 99.5% (fully redundant architecture)
- **Platform**: Enterprise storage array with high performance disk drives
- **Planned Downtime**: Individual server outages may be required for allocation, capacity growth and some code upgrades.

Data Protection

- **Backup**: 95% overall success rating, with no more than 2 consecutive days of missed backup jobs for any given server
- **Restore**: 99% success

Capacity

- Requests for up to 5% of the billable storage within the calendar month will be met immediately within the standard Change window agreement.
- Requests for up to 20% of billable storage within the calendar month will be met within 4 weeks.

Roles and Responsibilities Matrix

Roles and Responsibilities	CBTS	Customer
Manage backup activity, including job statuses and warnings	X	
Restore files based on Customer Service Requests	X	
Configure and maintain backup policies	X	
Install backup client software on Customer-identified systems	X	
Install application client software on Customer-identified systems	X	
Custom backup scripts		X
Identification of data (e.g., systems and files) in-scope for BaaS Service		X
Network connectivity to CBTS backup environment		X

Management Responsibility Definitions

Capacity Reporting and Management:

The capacity management process ensures that the capacity of IT services and the IT infrastructure is able to deliver agreed Service Level Targets in a cost-effective and timely manner. This process considers all resources required to deliver the IT services, and plans for short-, medium- and long-term business requirements.

Incident Management:

The process deals with all Incidents, including failures, questions or queries reported by the users (usually via a telephone call to the Service Desk), technical staff, or automatically detected and reported by event monitoring tools.

Change Management:

The process controls the lifecycle of all Changes with the primary objective to enable beneficial Changes to be made, with minimum disruption to IT services.

Routine Configuration Management:

As part of an overall Service Asset and Configuration Management Process, this process is responsible for maintaining information about Configuration Items (CI) required to deliver an IT service, including their relationships. The information is managed throughout the lifecycle of the CI.

Problem Management:

By managing the lifecycle of all problems, this service is provided to prevent Incidents from happening and minimize the impact of Incidents that cannot be prevented. Proactive Problem Management analyzes Incident Records, and uses data collected by other IT Service Management processes to identify trends or significant problems.

Continuous Improvements:

CBTS will provide Operational Reviews, Root Cause Analysis, Documentation Updates and Best Practices to measure performance, identify improvements and ensure that services are aligned with customer's changing business needs.

Reporting

The following reports are provided with the BaaS solution:

Report Name	*Description*	*Standard Publication Schedule*
Server Inventory	Inventory of all physical and virtual servers being protected	Monthly
Capacity report	Report the amount of storage being protected	Monthly
Incident Management Responsiveness	Time between alarm and ticket creation	Monthly
Service Request Timeliness	Time between service request opened and service request closed (less pause time if applicable)	Monthly
MTTR (Mean-Time to Repair)	Time between alarm & incident closed (less pause time if applicable)	Monthly

The following pages show examples of each report

Report Name: Server Inventory *Sample Report*

ACS-PRD-LAND04	Linux VMware Image	All Custom Datasets	85	Unknown	ubuntu64Guest	FALSE
AFAA-PRD-MKT01	Windows VMware Image	All Custom Datasets	228	Unknown	windows8Server64Guest	FALSE
AFAA-PRD-SQL01	Windows VMware Image	All Custom Datasets	228	Unknown	windows8Server64Guest	FALSE
AFAA-PRD-WEB01	Windows VMware Image	All Custom Datasets	228	Unknown	windows8Server64Guest	FALSE
AFAA-PRD-WEB02	Windows VMware Image	All Custom Datasets	228	Unknown	windows8Server64Guest	FALSE
AH-PRD-APP03	Windows VMware Image	All Custom Datasets	200	Unknown	windows7Server64Guest	FALSE
AH-PRD-APP04	Windows VMware Image	All Custom Datasets	200	Unknown	windows7Server64Guest	FALSE
AH-PRD-SQL03	Windows VMware Image	All Custom Datasets	1600	Unknown	windows7Server64Guest	FALSE
AH-PRD-SQL04	Windows VMware Image	All Custom Datasets	1713	Unknown	windows8Server64Guest	FALSE
AH-PRD-SSRS01	Windows VMware Image	All Custom Datasets	500	Unknown	windows7Server64Guest	FALSE
AH-PRD-WEB06	Windows VMware Image	All Custom Datasets	200	Unknown	windows7Server64Guest	FALSE
AH-PRD-WEB07	Windows VMware Image	All Custom Datasets	200	Unknown	windows7Server64Guest	FALSE
AI-PRD-ACCS01	Windows VMware Image	All Custom Datasets	200	Unknown	winLonghornGuest	FALSE
AI-PRD-ACCS02	Windows VMware Image	All Custom Datasets	200	Unknown	winLonghornGuest	FALSE
AI-PRD-ACCS03	Windows VMware Image	All Custom Datasets	200	Unknown	winLonghornGuest	FALSE
AI-PRD-ACCS04	Windows VMware Image	All Custom Datasets	200	Unknown	winLonghornGuest	FALSE
AI-PRD-ANA01	Linux VMware Image	All Custom Datasets	250	Unknown	ubuntu64Guest	FALSE
AI-PRD-ANA03	Linux VMware Image	All Custom Datasets	250	Unknown	ubuntu64Guest	FALSE
AI-PRD-FTP01	Linux VMware Image	All Custom Datasets	861	Unknown	ubuntu64Guest	FALSE
AI-PRD-ILOG01	Windows VMware Image	All Custom Datasets	200	Unknown	windows7Server64Guest	FALSE

Report Name: Capacity Report *Sample Report*

ClientName	*PlugInName*	*TotalGBProtected*
Virtual		
CUST-PRD-LAND04	Linux VMware Image	85
CUST-PRD-MKT01	Windows VMware Image	228
CUST-PRD-SQL01	Windows VMware Image	228
CUST-PRD-WEB01	Windows VMware Image	228
CUST-PRD-WEB02	Windows VMware Image	228
AH-PRD-APP03	Windows VMware Image	200
AH-PRD-APP04	Windows VMware Image	200
AH-PRD-SQL03	Windows VMware Image	1600
AH-PRD-SQL04	Windows VMware Image	1713
Client		
Cust-cinjump.cbnms.com	Windows File System	38.2114
Cust-lebjump.cust.com	Windows File System	39.8044
afsprod01.cust.local	Linux File System	342.0286

Report Name: Incident Management Responsiveness *Sample Report*

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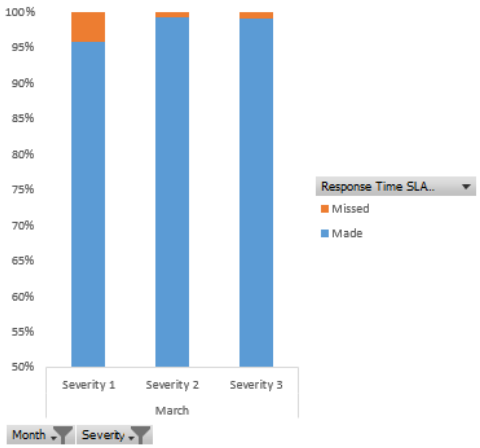
Overview of Service Level Objectives

7/1/2016 - 9/30/2016

Month	Made	Missed
September	99%	1%
Severity 1	100%	0%
Severity 2	99%	1%
Severity 3	99%	1%
Severity 4	100%	0%
August	99%	1%
Severity 1	100%	0%
Severity 2	99%	1%
Severity 3	100%	0%
Severity 4	100%	0%
July	99%	1%
Severity 1	98%	2%
Severity 2	100%	0%
Severity 3	99%	1%
Severity 4	100%	0%
Grand Total	**99%**	**1%**



Month	Made	Missed
September	668	4
Severity 1	26	
Severity 2	399	3
Severity 3	171	1
Severity 4	72	
August	866	5
Severity 1	20	
Severity 2	514	5
Severity 3	230	
Severity 4	102	
July	1188	6
Severity 1	56	1
Severity 2	578	2
Severity 3	467	3
Severity 4	87	
Grand Total	**2722**	**15**

Report Name: Service Request Timeliness *Sample Report*

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Overview of Service Call SLA Performance

7/1/2016 - 9/30/2016

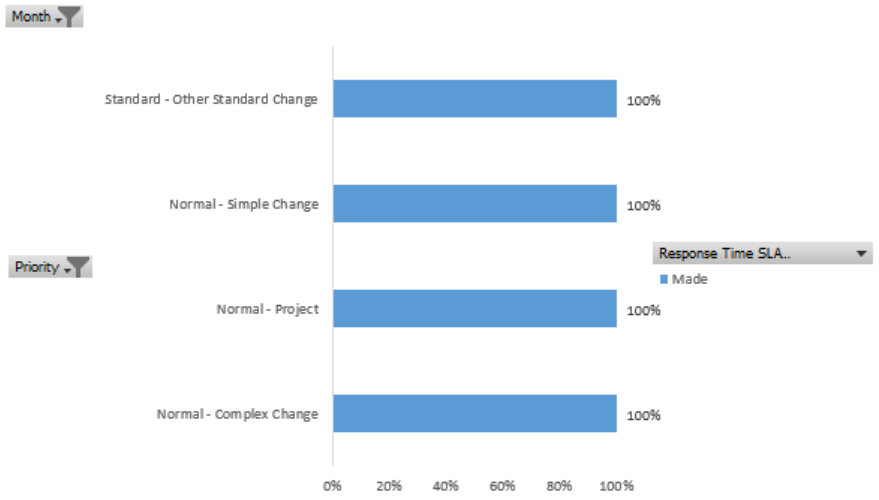
November: Service Call Response SLAs

Month: September

Type	Made	Grand Total
Normal - Complex Change	100%	100%
Normal - Project	100%	100%
Normal - Simple Change	100%	100%
Standard - Other Standard Change	100%	100%
Grand Total	**100%**	**100%**

Analysis Type: Change

Type	Made	Grand Total
August	35	35
n/a	1	1
Normal - Complex Change	2	2
Normal - Project	13	13
Normal - Simple Change	7	7
Standard - Other Standard Change	12	12
July	40	40
Normal - Complex Change	2	2
Normal - Project	17	17
Normal - Simple Change	6	6
Standard - Other Standard Change	15	15
June	37	37
n/a	1	1
Normal - Project	12	12
Normal - Simple Change	24	24
Grand Total	**112**	**112**



Report Name: MTTR (Mean-Time to Repair) *Sample Report*

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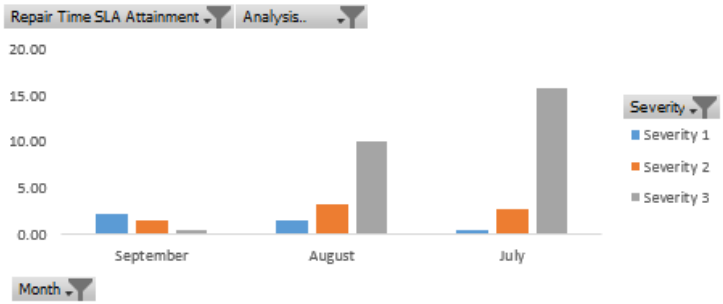
Incident - MTTR

7/1/2016 - 9/30/2016



Average Time to Repair - Hours

Month	Severity 1	Severity 2	Severity 3	Average
September	2.15	1.46	0.42	1.19
August	1.46	3.23	10.04	5.22
July	0.40	2.69	15.85	8.16
Average	**1.05**	**2.55**	**11.27**	**5.56**