

```

** STOP: 0x000000D1 (0x00000000, 0x00000000, 0x00000000, 0x00000000)
FFFFF80048D38C1)
athrx.sys - Address FFFFFF80048D38C1
Writing data for crash dump
Flashing disk for crash dump
physic of ph

```

Windows crash, RAID failure,
SQL or Win patch fails, C: full,
terminate the wrong VM

Current State	Business Goal
1. Customer Segments • Primary: Small businesses (1-50 employees) in the retail and food service sectors. • Secondary: Mid-sized corporations (51-200 employees) seeking cost-effective solutions. • Tertiary: Government contractors and non-profits.	1. Revenue Growth: Increase annual revenue by 20% over the next 12 months. 2. Market Penetration: Acquire 150 new customers within the next 6 months.
2. Value Proposition • Core Value: Streamlined workflow automation and data integration. • Key Features: Cloud-based platform, mobile access, and robust security protocols. • Benefits: Reduced operational costs, improved efficiency, and enhanced data security.	3. Customer Retention: Achieve a 90% customer retention rate over the next 18 months. 4. Brand Awareness: Increase brand visibility through targeted marketing campaigns.
3. Channels • Digital Marketing: SEO, content marketing, and social media advertising. • Sales Funnel: Free trial offers, webinars, and direct sales outreach. • Partnerships: Collaborate with industry influencers and complementary service providers.	5. Operational Efficiency: Reduce customer support response time by 50% within the next 9 months.
4. Cost Structure • Fixed Costs: Software licenses, server infrastructure, and salaries. • Variable Costs: Marketing expenses, customer support, and cloud storage fees. • Optimization: Regularly review and optimize the cost structure for profitability.	6. Customer Satisfaction: Maintain a Net Promoter Score (NPS) of 40 or higher.

		Zero
		1 minute
		1 hour
		1 day

Current State	Business Goal
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		Zero
		1 minute
		1 hour
		1 day

A close-up photograph of a red fire alarm pull station. A person's hand is shown pulling the black lever, which has the words "PULL DOWN" and a downward arrow printed on it. The word "FIRE" is printed in large white letters at the top of the device. At the bottom, there is a black circular button and a small red fire alarm icon.

Network, SAN, power fails,
Azure outage of 2018-09-04,
AWS outage of 2017-02-28

Current State	Business Goal
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		Zero
		1 minute
		1 hour
		1 day

Current State	Business Goal
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		Zero
		1 minute
		1 hour
		1 day

SAN firmware bug, SQL bugs like KB 2969896, 3213240, 4101502, 4531238, etc.

Current State	Business Goal
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		Zero
		1 minute
		1 hour
		1 day

Current State	Business Goal
1. Lack of a clear vision and mission statement	1. Increase revenue by 10% in the next quarter
2. Inconsistent branding and messaging	2. Improve customer satisfaction scores by 5%
3. Limited marketing budget	3. Expand into new markets by the end of the year
4. Poor timing of product launches	4. Reduce operational costs by 15%
5. Ineffective sales and distribution channels	5. Enhance employee productivity by 20%

		Zero
		1 minute
		1 hour
		1 day

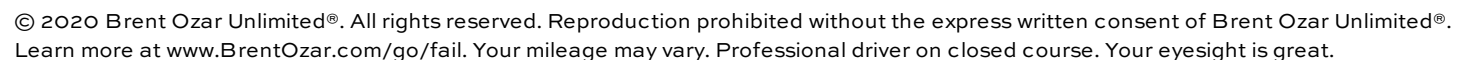
UPDATE without a WHERE,
truncate table in prod instead
of dev, drop the wrong db

Current State	Business Goal
1. Customer Segments	1. Revenue
2. Value Proposition	2. Profit
3. Channels	3. Market Share
4. Customer Relationships	4. Customer Satisfaction
5. Revenue Streams	5. Operational Efficiency
6. Cost Structure	6. Employee Retention
7. Key Resources	7. Brand Reputation
8. Key Activities	8. Product Quality
9. Key Partnerships	9. Customer Loyalty
10. Business Model	10. Market Penetration

		Zero
		1 minute
		1 hour
		1 day

Current State	Business Goal
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		Zero
		1 minute
		1 hour
		1 day



Recovery Time Objective (RTO) - Downtime

Recovery Point Objective (RPO) - Data Loss

	Zero-1 Sec	1 Minute	1 Hour	1 Day
Zero-1 Sec	>\$1,000,000 Multiple active servers with bidirectional replication (usually requires code changes)*	\$100k-\$500k Clustering w/SAN, sync Availability Groups*, sync database	\$100k-\$250k Sync SAN replication*, sync VM replication*	
1 Minute			\$50k-\$250k Async Always On Avail Groups, async DB mirroring	\$5k-\$100k Log shipping, async SAN replication, async VM replication
1 Hour			\$5k-\$100k Log shipping, async SAN replication, async VM replication	
1 Day				

* - technically these don't guarantee zero data loss: the secondary can get out of sync.

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 Learn more at www.BrentOzar.com/go/fail - except in Nebraska, as Steve Ballmer explains: BrentOzar.com/go/nebraska



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Comparison of SQL Server Availability Features

	o/o	o RPO / 1 Minute RTO			o RPO / 1H RTO		1M RPO / 1H RTO		1H RPO / 1H RTO		
	Replication	Failover Clustered Instances (FCI)	Always On Availability Groups - Sync	Database Mirroring - Sync	SAN Replication - Sync	VM Replication - Sync	Always On Availability Groups - Async	Database Mirroring - Async	Log Shipping	SAN Replication - Async	VM Replication - Async
Recovery Point Objective (Data Loss)											
Data loss possible	Yes	No*	No*	No*	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Typical RPO goal	Zero	Zero	Zero	Zero	Zero	Zero	1 Minute	1 Minute	1 Hour	1 Hour	1 Hour
Recovery Time Objective (Downtime)											
Failover automatic or manual	Automatic	Automatic	Automatic	Automatic	Optional	Optional	Manual	Manual	Manual	Manual	Manual
Can be failed over by the DBA alone	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	No
Easy to fail back and forth for patching	Some	Yes	Yes	Yes	No	No	Yes	Yes	Some	No	No
Multiple live writeable servers	Optional	No	No	No	No	No	No	No	No	No	No
Fails over Agent jobs, SQL logins	No	Yes	No	No	Optional	Yes	No	No	No	Optional	Yes
3rd party apps fail over easily	No	Yes	Yes	Some	Yes	Yes	Yes	Some	No	Yes	Yes
Typical RTO goal	Zero	1 Minute	1 Minute	1 Minute	1 Hour	1 Hour	1 Hour	1 Hour	1 Day	1 Day	1 Day
Groups of Databases											
Are the same point in time	No	Yes	No*	No	Yes	Yes	No	No	No	No	No
Fail over together	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hardware & Software Requirements											
SQL Server minimum version supported	Apps vary	Any	2012	2005	Any	Any	2012	2005	Any	Any	Any
SQL Server minimum edition required	Apps vary	Any	Ent until 16	Any	Any	Any	Ent until 16	Enterprise	Any	Any	Any
May require application changes	Yes	No	No	No	No	No	No	No	No	No	No
Req storage for multiple copies of DBs	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Requires shared storage (SAN)	No	Yes	No	No	Yes	Yes	No	No	No	Yes	Yes
Requires virtualization	No	No	No	No	No	Yes	No	No	No	No	Yes
Can use local solid state storage	Yes	No	Yes	Yes	No	No	Yes	Yes	Yes	No	No
Performance											
Has noticeable performance impact	Maybe	No	Yes	Yes	Maybe	Maybe	Minimal	Minimal	No	Maybe	Maybe
Can offload backups, DBCCs, reports	Yes	No	Yes	No	No	No	Yes	No	Some	No	No