Some thoughts about the cost of performance degradations

White Paper

SecurActive

Contents

1. FOREWORD

There are discussions that we have with almost every customer we meet: evaluating the cost of performance degradation. Even if the cost is not obvious, after going through some simple steps, almost every customer realizes how big the operational loss induced by performance degradations is important. Here is a sample discussion we had with one of our customer, which could almost be any of our customers.

2. CONTEXT

I met one of SecurActive's customer network manager last week (a large industrial corporation). While talking their need in terms of network monitoring and application performance management, we had the occasion to discuss the cost comparison between service outage and performance degradation.

What he had in mind in the first place, was about keeping potential service outage under control; obviously in the manufacturer's world, this is something that they have talked in details with their management: defining critical services, SLAs for recovery etc…

While talking about performance degradation, I noticed I was taking him to more of a raw battlefield. Soon he acknowledged the fact that they were feeling much more uncomfortable in dealing with performance degradations:

- Incomplete ability to perform fast diagnostic and resolution,

- Lack of efficiency in the way IT teams (network, systems, workstations, applications, databases) collaborate,

- "Hot potato" game between departments and service providers,

- Getting high pressure from the management when degradations occur,

- But having difficulties in getting their managers to invest in solutions that actually make them able to solve these issues.

We soon realized the interest of trying to evaluate the cost drivers of performance degradations.

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## 3. DRIVERS FOR THE COST OF PERFORMANCE DEGRADATION VS. OUTAGE

Time for Resolution is the key for understanding the cost difference between outage and degradation. Here are the factors that create the difference and make the diagnostic and resolution harder:

- **Non obvious for the IT administrators,**

- **No clear root cause,**

- **No permanent impact.**

Actually in the case of a service outage, users are totally blocked (hence the level of complaint is high), simple monitoring systems turn to red (SNMP console), show the element of the chain that fails and this can be observed permanently until the resolution is complete.

3.1   Service outage case

Here is what the timeline looks like for a service outage:
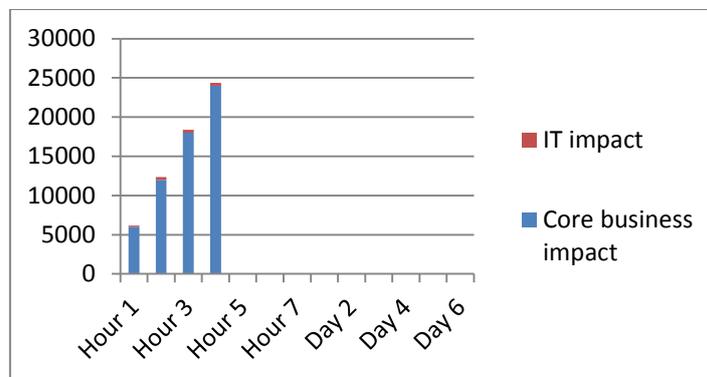
The costs would be the sum of the following elements:

- Number of users impacted x hourly costs of users x percentage of productivity loss (e.g. for a service outage: 100%) (in the example above, we considered a 100 users at an hourly rate of 60€)

- Number of IT administrators dedicated to resolution x hourly costs x percentage of time dedicated to the resolution (in the example above, we considered 3 administrators)

- Impact on the company's revenues (this was NOT taken in account in the example above)

In this example, we took only the two first factors:

- 4 hour resolution (as per our customer's experience)

- 100% productivity loss of core business and IT at a hourly rate of 60€

Our customer was mentioning 4 events of this kind per year: the yearly costs would be of approximately **100k€ per year**.

3.2   Performance degradation case

Here is what the timeline looks like for performance degradation:

3.2.1   Phase 1: Realizing that there is a problem

It is hard for IT administrators to identify that the performance are degraded, so they have to wait until they get so many complaints or the issue is escalated to the management to realized that they have a problem. According to our customer, this takes 2 to 3 working days.

3.2.2   Phase 2: Localized diagnostic

Each part of the IT team looks (network, systems, workstations, applications, database, external service provider) in its perimeter to find the origin of the degradation; most of the time, either the diagnostic is obvious or everyone sees no problem in their respective perimeter (this is usually called the "hot potato" game). According to our customer, this takes 2 to 3 working days.

3.2.3   Phase 3: taking ownership for a wide angle diagnostic

The 2nd phase usually ends up with a stressful meeting with the CIO who requires the network administrators to take ownership of the diagnostic considering all the possible causes for the problem. According to our customer, this takes 2 to 3 days.

3.2.4   Phase 4: resolution

Once the root cause is identified, the level of pressure is so high that the resolution (if possible) is undertaken within 1 or 2 days.

Obviously some factors can make the diagnosis process longer:

- An intermittent issue will require a longer diagnostic period

- A lack of tools and expertise will make the phases of this process longer.

Overall our customer evaluated the time range for going through the process between 7 and 11 working days. He counted between 4 and 5 occurrences per year, which means a **global impact of 28 to 55 working days**.

The costs would be the sum of the following elements:
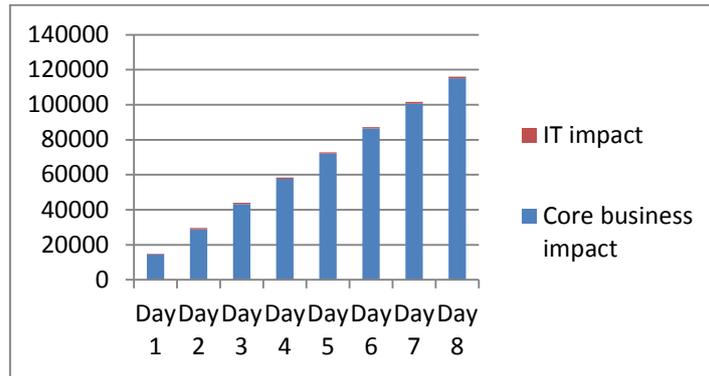
- Number of users impacted x hourly costs of users x percentage of productivity loss (e.g. for a service outage: 100%) (in the example above, we considered a 100 users)

- Number of IT administrators dedicated to resolution x hourly costs x percentage of time dedicated to the resolution (in the example above, we considered 3 administrators)

- Impact on the company's revenues (this was NOT taken in account in the example above)

In this example, we took only the two first factors:

- 8 day resolution (as per our customer's experience)

- 30% productivity loss of core business and IT at a hourly rate of 60€

Our customer was mentioning 4 events of this kind per year: the **yearly costs would be of 480k€ per year**.

4. THE BENEFIT OF APM FOR YOUR ORGANIZATION

From this statement, we tried to find out what would be the Return on Investment of an **APM (Application Performance Management).**

Here is what the timeline looks like for performance degradation with an APMin place:
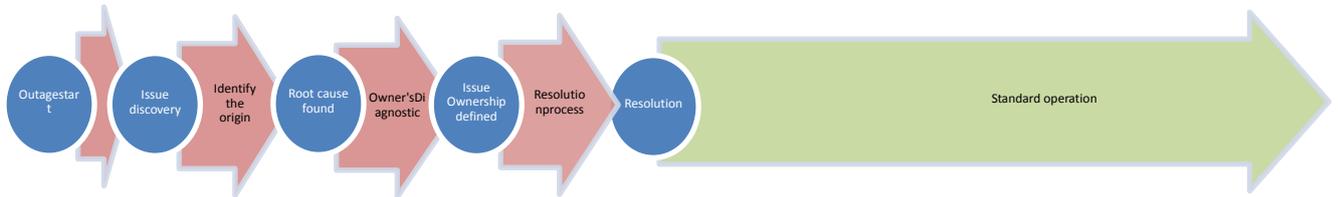
4.1.1   Phase 1: Realizing that there is a problem

Being informed by the APM reduces that phase to few minutes.

4.1.2   Phase 2: Localized diagnostic

Identifying who owns the issue is also a matter of minutes (let's say 10)

4.1.3   Phase 3: owner's diagnostic

The owner can diagnose the problem quickly. We will make an assumption of one day.

4.1.4   Phase 4: resolution

Once the root cause is identified, the level of pressure is so high that the resolution (if possible) is undertaken within 1 or 2 days.

Overall our customer and us evaluated the time ranges for going through the process between 2 and 3 working days. He counted between 4 and 5 occurrences per year, which means a **global impact of 8 to 15 working days (instead of 28 to 55 days)**.
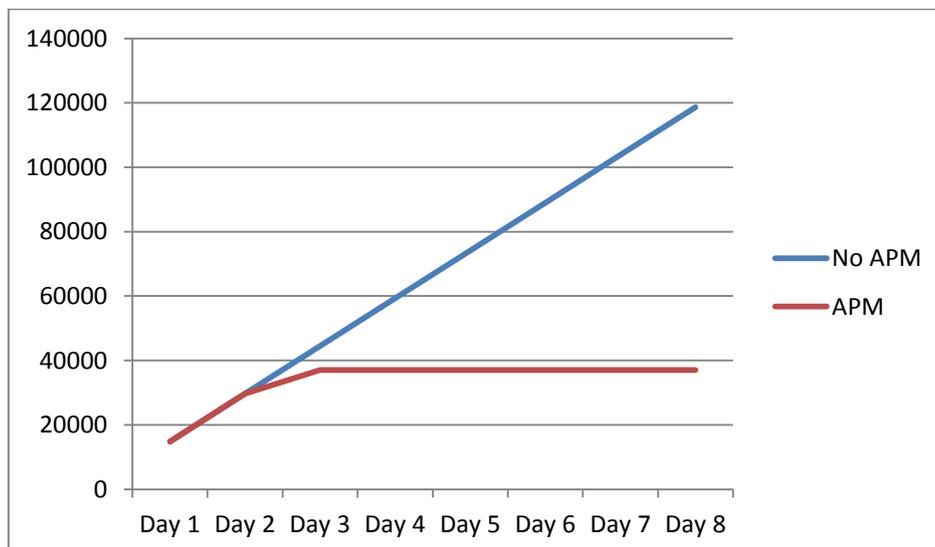
In this case (if we consider 4 occurrences per year, like previously), the APM solution enables the IT team to limit the impact to 37.5k€ (instead of 116k€); this induces a **saving of 314k€ per year for 100 users and for 4 yearly degradations with an impact of 30% on users' productivity**.

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If we extrapolate from these figures, here are the **yearly savings (in k€)**, we obtain:

	Loss of productivity		
	10%	30%	50%
50	52k€	157k€	262k€
100	105k€	314k€	523k€
200	209k€	628k€	1 047k€
400	419k€	1 256k€	2 093k€
800	837k€	2 512k€	4 187k€
1600	1 675k€	5 024k€	8 373k€

(Number of users impacted)

- For 4 degradations events per year,

- With a MTTR of 8 working days without an APM and 2,5 working days with an APM,

- An hourly cost per user of 60€.