

IT Performance Management in a Financial Crisis: An informal report

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One of the hardest but also most exciting experiences ever for a capacity planner and performance specialist is having the possibility of working in the middle of a financial crisis. In the summer of 2002 I was in charge of the capacity planning and performance office of a major American bank in Buenos Aires, Argentina, and I was in the eye of the storm during the entire crisis. This session is a kind of informal report of my experiences then, and also an attempt to extract useful teachings for crisis management in an IT environment

A personal note: It took me ten years to come back and revisit the work done in those hectic weeks of December and January of 2001/2002. Most of the memories of those days are associated to very painful moments and I felt that I needed some time before going back and looking at them in an objective way. The Argentinean financial crisis of 2001 was one of the toughest crises ever to arise in a country with a long history of financial problems. For the people of my generation it was “our crisis”, since in it we lost our savings, years of efforts and, most importantly, the hope that the country could be different. For some of us the crisis was the first step in the long road toward exile, the beginning of the realization that we should search in other places what we believed Argentina could no longer offer.

I own a debt of gratitude to Denise Kalm, for she was my mentor for the paper that I lectured at the CMG 2001, where I was at the beginning of the crisis. She heard some of the early stories about that time and has always encouraged me to write them down. This paper finally makes that real.

One of the hardest but also most exciting experiences ever for a capacity planner and performance specialist is the possibility of working in the middle of a financial crisis. As is the case with most critical situations, a financial crisis can extract the worst and the best of yourself and your organization. It is then and there where the best and well-conceived contingency plans pay off and where a prompt response to a particular problem given on the spur of the moment— to do something now - far outweighs the alternative of a better solution later on. On hindsight, it is the moment that you would probably regard as being one of the best times of your professional career but also one that you would never like to live through again.

In the summer of 2002 (for the southern hemisphere that is from December 2001 to March 2002) I was in charge of the capacity planning and performance office of a major American bank in Buenos Aires, Argentina, and I was therefore in the eye of the storm during the entire crisis. This paper is a sort of informal report of my experiences then and it is also an attempt to extract some useful lessons for crisis management in an IT environment.

The origins of the Argentinean financial crisis

First of all I have to start with an account of the country's financial situation so that it becomes possible to understand why the government made the decisions it did and why both the general public and the market reacted the way they did.

Argentina has always been a rich country, or at least that is what elementary school students have repeatedly been taught since the 19th century. Some of the reasons for such richness lie in the fact that Argentina is an extensive country set on one of the most fertile lands of the world, a land with an overabundance of natural resources- including enough oil and natural gas to satisfy the country's internal demand. At the beginning of the 20th century Argentina was considered the 8th largest economy in the world. Its capital city, Buenos Aires, had more telephone lines than Paris at the time. Some of its neighbourhoods were dotted with mansions built to follow the model of those in Paris and London. However, starting as early as 1930 and continuing for 50 years, a series of populist governments, military coups and unfortunate economic policies had turned Argentina into a shadow of its former self.

For Latin-American countries the 80s are considered the “lost decade” and Argentina is no exception. In 1989 the government had to hastily turn over power to another elected government (the first democratic turnover of power since 1930) in the middle of a turmoil caused by both a price inflation of 20,000% (yes, it is not a print mistake) and a fall of the Gross Domestic Product (GDP) of 6 percent for that year alone - this without considering that during the same decade the GDP had shown a cumulative extra fall of 9%. This means that by the end of the 80s the average Argentinean was 20% poorer than he was in 1979.

It took the new government 2 years to start a stabilisation program to combat inflation that finally seemed to work. The core of the new program consisted of pegging the Argentinean currency (the “Argentinean peso”) to the US dollar. This meant that for each US dollar circulating in the market there could only be one peso circulating in the same market. The Central Bank was allowed to issue extra pesos only if new US dollars entered the country by means, for example, of a surplus in the government’s budget. The new scheme seemed to be a success. In a couple of months the inflation was under control. However, some undesirable side effects would follow.

Pegging the US dollar to the peso made the country’s traditionally uncompetitive industrial sector even more uncompetitive - if that was possible. Suddenly, it was cheaper to buy goods abroad than it was to produce those same goods internally, which in turn led to an increasing commercial deficit. In addition, although the fiscal deficit had not yet been reduced to acceptable levels, the federal government continued to increase public expenses way beyond what was collected via taxation. In the context of continuing commercial and fiscal deficit, the government got increasingly indebted. In an attempt to find a solution to the public deficit, the government resorted to issuing debt to pay for more debt – to an extent that the markets started doubting the government’s capacity to pay them back.¹

In 1999, the country was facing an economic recession once again (although this time without inflation). The industry was severely damaged, the unemployment rate was around 15% and climbing, the government was heavily indebted and, to make matters worse, the country’s traditional cash cow (the agricultural sector) was “out of milk”: commodities prices were at a historical minimum worldwide, which make the possibility of obtaining genuine US dollars for the country’s exhausted economy almost unattainable. That year a new government was elected. It became clear the country’s economy was in desperate need of a change of policy. However, fearing the disastrous consequences that a modification of the parity between the peso and the US dollar might cause and the undesirable consequences that could spring up at the reduction of the fiscal deficit, the new administration decided to continue with the economic policies of its predecessors.

The financial and IT situations in my company

For the financial sector the decade had been good. I had worked for several foreign banks during the 90s and for all of them the years of that decade had been good years. The currency stability had made it possible for the banks to operate as “normal banks”: dedicated to lending money to people to purchase a home with a mortgage (something which had been impossible before), to opening savings accounts or issuing credit cards. At the end of the decade, just like its government, the average Argentinean was also unusually indebted. This was mostly due to the fact that many of them had to pay mortgages and credit card debts in US dollars while their salary was in pesos. But as long as the “1 to 1” relation between the dollar and the peso continued, nobody seemed to care much in which currency their debt was expressed. Since the customers’ debt is the banks’ profit, the financial numbers looked well for the banks².

This surplus of money was also very good for the IT area of the bank where I worked at the time. Hardware and software were comparatively cheap, and we had plenty of both. In 2001 we had just changed the mainframe; we had a capacity planning & performance office, and life in general was good. If I needed extra capacity I didn’t have to argue a lot with the top management in order to get it. The cost of idle capacity was low, and I was more

¹ As I’m writing this paper the Greek crisis is developing in Europe. It has the same elements that the Argentinean had in the 2000’s: A government spending more than it can, a population and government heavily indebted and a currency that they cannot control. In the Argentinean case it was the US dollar, in the Greek case is the Euro. There is also another parallel, the fury of the people is once again directed against the banks; in the Greek case some have already been burned.

² As everybody now knows this is true until the debt of the bank became difficult to recover, because a majority of the customers are in risk of default. But the external and internal audits used to compare the levels of indebtedness with American standards, and comparatively the average level of the debt of the Argentinean customer was low. Of course this only works if the relation between peso and dollar continued to be 1 to 1.

concentrated in having processes to measure performance and capacity in every infrastructure and in negotiating SLAs with the internal customers than I was in engaging in lengthy negotiations concerning the “extra” CPU that would be needed the next year.

At that moment our infrastructure consisted of a 1000 MIPS mainframe, several AIX servers, a network of 300 Windows servers and several thousands PCs. In addition, the Capacity Planning office had responsibility over the call center, the transactional web sites and over the capacity of the ATMs, a subject about which we had already conducted some studies.

However, despite an overall thriving prosperity, financially speaking there was still an important problem on the horizon for the banks. Since the government was becoming increasingly desperate to obtain US dollars, it developed a plan to that effect. Using the power of the Central Bank (the Argentinean equivalent of the Federal Reserve), the government started to sell “compulsory” bonds to the banks. Although the government would pay handsomely high interest rates on the bonds, the idea of buying bonds from a government with serious financial troubles could hardly be considered a particularly good business deal. However, the banks did not seem to have much of a choice in this matter. It soon became clear that if they didn’t buy the bonds, they would be subject to such retaliation practices as delays in permits to open new branches, unusually meticulous audits, etc. Therefore, by the end of the 90s, the banks had a lot of Argentinean debt bonds. As they were considered a high risk investment, their interest rate was therefore fairly high. Paradoxically, this last feature, which made the bonds look good in the “assets column” of the banks’ general ledger, was the same feature which later served to characterize those same bonds as “toxic debt”.

The crisis explodes

The first indication that a financial crisis was imminent became evident a couple of days before I took a plane to go to the CMG 2001 conference in Anaheim. The 29th of November 2001 my boss told me that the next day he would have to be at the trading floor of the bank the whole day because the CTO had asked him to coordinate the technical support in case something went wrong during the financial operation of the so called “bonds exchange”. He added that all of the bank’s top management would be there. The occasion was really rare and I asked him what the “bonds exchange” operation was. He answered that it was the event where all the banks would proceed to exchange their old toxic bonds for either new ones or cash in the electronic market. He added that all the financial operators were going to be interested in that bond exchange, mainly because the interest rate that each bank was ready to pay for its new bonds would be indicative of the relative financial health of that particular bank, showing how many bonds they had, how much desperate for cash were, etc. I didn’t pay much attention to this matter then, since I would be boarding a plane to give my first lecture at CMG the next day and I was worried about the extra airport security in the post 9/11 days. Clearly my mind was not on something that at the time looked like a financial technicality.

The problem during that financial operation was that most of the major government-owned banks and some of the public ones were incredibly indebted. The interest rates that they would have to pay in order to recover their financial health would be so high that some of them would be technically bankrupt if they did. The spectre that several of the most important banks in Argentina were at the brink of bankruptcy was suddenly very real. It was so real in fact that, in the course of that weekend, the Central Bank issued a resolution decreeing a bank holiday for the following Monday and stating that the “holiday” would continue for as long as it took them to decide on the series of measures needed to prevent a bank panic. Of course far from bringing tranquility to the market this unexpected “bank holiday” made everybody panic. For if you had any doubt about the depth of the crisis, having the banks closed for several days certainly made that doubt disappear.

Additionally, the bank holiday generated an important side effect. As the banks were closed, all the mechanics of financial operations suddenly became unavailable. Debit cards and checks were not paid and ATMs could not be refilled. Therefore the shortage of cash quickly became a major issue.

In Anaheim, my hotel room started to look more like a prison. As I read on the internet about the government’s announcement of each new set of measures for the banks, I could only imagine (but in some aspects my imagination proved to be poor) the intensity of the work ahead for us.

The “click flooding” began

In the week that followed, the Central Bank issued several new sets of measures. One was the prohibition to transfer money outside the country. Another equally important one was the banning of all withdrawals in US dollars. Finally, the most crippling measure of all by far was the prohibition for any person or company to withdraw more than 250 pesos (or dollars) in cash per month from their own accounts. The measure was intended to prevent the banks from going insolvent since most of the people who could had already taken the money from their bank accounts, putting it outside the banking system. However, in a country where only very few people used the Internet or checks at the time and where debit cards were almost a curiosity, this last measure was the equivalent of practically stopping all economic activity.

However, money could still change hands between bank accounts through checks, electronic transfer or debit cards. The use of these banking products was not as widespread at the time as it is now, mainly because they were perceived as products for businesses or for wealthy individuals. The majority of the population received their salaries via direct deposit in subsidized, special accounts that were refilled each month by their employers, a system which allowed them to access their cash more or less quickly through ATMs. This time, however, the access to their money had been severely restricted due to the new regulations in force. In an attempt to overcome the situation, the public started to demand access to the use of electronic channels for relatively small transfers of money. Try to picture the situation for a minute: paying the groceries, one electronic transfer; giving some money to my ill mother; another electronic transfer and so on. As I have already said, these channels had been designed for the wealthy few that were using them before the crisis and consequently they quickly became unable to bear the sudden increase in demand. Not surprisingly, they were saturated in the term of hours.

Let's look at each of the transactional channel of a typical bank at that time and analyze what kind impact the measures had on them:

Internet: The web servers crashed a couple of hours after the new measures were announced. The workload increased 16 times in the term of an hour and remained at that level during the duration of the crisis!! We had to put some emergency measures in practice. First of all, we changed our main web page; we reduced the size of the page to its bare bones and proceeded to change the way in which it was generated. Before the crisis, a new page was generated every time a user entered the system, showing him the latest economic and stock news. During the crisis a new page was generated once every 5 minutes and the users that entered received the last generated page stored in memory.

Why didn't we just give the users a static page instead? Because the Bank decided to use the main web page, featuring the latest news, as a communication channel with the customer in an attempt to reduce the number of questions that worried customers were asking our phone banking operators. In any event, following some fast negotiations with the business area, we settled on a background generation schedule of a page every 5 minutes as a good tradeoff between computer resources use and news updates.

With this modification the first bottleneck was bypassed, and the customers were at least able to access the login page of our transactional banking site. But eliminating a bottleneck only serves to make the next one evident and of course the infrastructure was not enough to handle the level of transactions it was receiving. This was a problem that we couldn't solve completely to customers satisfaction during the whole crisis, but some measures helped. Part of our infrastructure was based on parallel chains of windows servers - Wintel or Linux servers are cheaper and easier to install than bigger infrastructures - which allowed us to quickly add servers and chains to improve the performance of our site. Needless to say, there were parts where we were using other architectures, like mainframe transactions. The latter quickly became the bottleneck in terms of capacity of the whole system. I will refer to the mainframe in more detail later.

Phone banking: Not only were the automatic response channels (IVRs) saturated, but the human operators as well. The majority of the customers who called the bank worried about their savings were slowly exasperated by the long waiting times. As they waited, they were forced to listen to "call center music" interrupted by occasional short messages which informed them that they were "important for us", reminded them of the last economic measures (as if they could forget them!) and of the fact that they could not touch their own money (another unforgettable!). When they finally reached a human operator they had already gone berserk, making the employee on the other side of the line the target of their rage.

Needless to say, the talking time skyrocketed, reducing the capacity even more. To make matters worse, another phenomenon we had not foreseen emerged. Our operators were mostly young university

students. They were completely unprepared to deal with the level of anger and verbal abuse that the customers were showing against them, which in turn led to generalized nervous breakdowns, forcing us to send some of them home. A vicious circle quickly developed. The call center manager attempted to improve the situation by making more mandatory pauses and trying some coaching. Unfortunately, we didn't have the time to train new operators, something which had the overall effect of further diminishing our capacity when we needed it the most.

ATMs: The ATM's 250 pesos withdrawal limit had been fixed by the Government based on such financial considerations as the number of people in the financial system and the money available in the banks. However, the limit was not related to the number of ATMs and the physical cash capacity that these had. Since people were concerned about the next governmental movement, they tried to withdraw their 250 pesos as fast as they could. The lines in the ATMs became really long and the machines went out of cash as fast as they were replenished. We thought that the situation would be solved in a matter of days until we realized that there was a loophole in the Central Bank measures and that people were increasingly taking advantage of it.

Branches: The loophole was that the Central Bank's 250 withdrawal limit was applicable to solely "one account per bank" and not "per person". It didn't explicitly prohibited customers from opening one account per bank in several different banks; neither did it preclude the possibility of making electronic transfers between those accounts and extracting 250 pesos from each one of them. As the public became aware of this new possibility, the opening of new accounts promptly translated into an increase of 20% in the total number of customers for the bank - and this in just 2 weeks!! For each of these customers we not only needed to process the opening forms but also to print and send the ATM cards. Moreover, as soon the new bank accounts were opened there was an explosion of electronic transfers between banks - a system that for retail customers had just been developed a year before with small workload requirements, since in normal times, the public would rather use checks than electronic transfers. This system promptly became the most critical channel and one of the most publicized ones, since every newspaper in the country came up with instructions (or were they news?) of how to take advantage of the loophole. Soon enough, the system became unusable because of the workload.

The number of people waiting to open new accounts brought about an additional problem. As long lines became the norm, the branches had to remain open during extended hours, including Saturdays, in order to cope with the demand.

Mainframe: All this extra activity had an impact on the mainframe capacity. As it was the case for most banks in the world, all our transactional channels ended in the mainframe. Having to open the doors of our branches on a Saturday meant that the on-line had to be available during those days too, which left the end of the week batch processes with less time to run, etc. For example, the processing of checks was an overnight batch process. But the volume of checks was so big that the batch process for only a day took more than 20 hours to run!! In the morning, we needed to close the batch in order to open the online transactions for the branches. Finally, the "solution" reached was something like "run the batch process for as long as you can and the checks that were not processed during that night would be processed on the next one". Some of you may be wondering what we did about the legal period for check processing....Well, in a country where the government can order banks not to give customers their money back, check processing time becomes just a legal triviality.

Then financial, now political

Argentines were not happy with the government. Very soon, spontaneous and not so spontaneous demonstrations began. They were called "cacerolazos" because most of the demonstrators were middle class people who vented their dissatisfaction with the Government measures by hitting old pots (cacerolas) in the middle of the streets. The demonstrations had started some days after the first measures were announced and, within a matter of days, they had caused the Secretary of Treasury to resign. Unfortunately, the demonstrators' main concern - the derogation of the banking measures - remained unaddressed.

Towards Christmas the situation was chaotic. On December 21st, the Argentinean President had to resign when the demonstrations acquired the characteristics of a riot. His resignation generated a legal vacuum, since the Vice-President had resigned 9 months before, though for completely unrelated reasons. An interim President was then appointed. The situation became so unstable that the government changed leaders several times before

President Duhalde - with legal credentials that were more than dubious - finally took office. Meanwhile the nation had declared itself in default and the Central Bank had announced some extra measures - as if we didn't have enough!

Among those measures was the order to cancel all bank accounts in US dollars and to convert them to Argentinean pesos at a 1 to 1 rate. Mortgages in US dollars were also to be converted into pesos at the same 1 to 1 rate. To make matters worse, the Argentinean peso was devalued 3 to 1 in relation to the US dollar.

Let me clarify the consequences of these last points a little bit.

Changes, changes all the time

What that new string of measures implied was that all US dollar accounts had to be converted into pesos accounts on a parity scale, but the exchange rate between the dollar and the peso was now of 3 to 1. If you had a 100,000 US dollar mortgage, your mortgage was now of 100,000 pesos; and if you had a savings account with 1,000 US dollars, you now had a savings account with 1000 pesos. However, if you wanted to buy US dollars with these 1000 pesos, you would only be given 334 US dollars in return. All of a sudden you had lost 66% of all your savings in US dollars, just like that.

The impact of the measures for the IT department was that all the processes that formerly worked with different currencies had to be converted to work only with pesos; some accounts had to be closed and new ones had to be opened. Moreover, these new accounts had to be associated to their transactional channels, etc. The announcement of the new measures was made on a Friday and the bank was supposed to open with the new system in place the following Tuesday. As you can imagine, the amount of work for the system development teams was amazing. I can only summarize this part of the story because systems development was in a completely different area than where I was. The only thing that we could do to improve the situation was help the technical support team to install and test the new versions as the development team produced them and then make the occasional restore when things were not going as well as intended.

Try for one minute to picture the development process: quick and dirty, with minimal testing; going from unitary test to a minimal integration test and then straight to production; minimal documentation, if any at all; people sleeping at their desks, and everybody asking themselves - and this only if they had some time to spare - what would happen once the crisis was over. The more pressing question was whether they would keep their jobs. Would the bank decide to close its doors? What would happen to their savings - for if last Friday they had 100 dollars in their bank accounts, they knew too well that right now they had only 30 dollars (and those in pesos). As they were the ones writing the programs which allowed this to happen, they couldn't help but feeling that they were preparing the poison for their own collective suicide!

Aftermath for the country and the company

After that weekend, the work at the banks gradually improved. As crazy as the previous weeks had been they did not prepare us for what was yet to come. The country seemed now to be entering into an economic shutdown; in 2002 the GDP decreased by 9 percent; the unemployment climbed to 25% in a couple of months; 50% of the population had an income level so low that they were considered poor, which meant that they could barely feed themselves, and 15% of the population could not even do that.

Our bank went from having 4000 employees to having 2000 during that year, and as the government didn't want to assume its own responsibility in the crisis, they blamed the banks instead, using them as scapegoats. For the next 3 years, every Monday, Wednesday, and Friday, those who had their savings in our bank would persistently hit the metallic doors of the bank headquarters with hammers, protesting for the loss of their money. Verbally abusing bank employees became a national sport for the next couple of months. The situation became so difficult that the bank decided to allow their employees to dress casually all days of the week, in an attempt to prevent them from becoming the target of retaliation in the streets³. Some foreign banks sold their assets and closed their doors.

³In Argentina banks were traditionally known as being a "tie and suit" job in all the offices, irrespective of whether you were in contact with the public or not.

The IT department was severely reduced and the datacenter was outsourced - all this was done in an attempt to reduce costs and to bring some profits back to the bank, in what was an already seriously depressed market. My responsibilities changed. I became more of a member of the outsourcing controller office and less of a traditional capacity planner. But I should say that I was lucky. At least I had kept my job.

For a whole generation the scars left by the crisis were deep. For most of the professionals whose careers were formed during the 90s, the loss of their savings, their jobs and the return to a situation of total economic instability proved to be too much to bear. They had worked for multinational companies; some of them had master's degrees and were bilingual. A considerable percentage of them didn't find any other way to survive except by emigrating to other countries: some to Spain, others to Italy, Chile and Brazil⁴. Ten years later some of them have returned to Argentina, but the majority have not.

Lessons learned for a capacity planner

What did I learn from my experience in that economic crisis? Was this particular crisis so extreme that we are to assume it holds no valuable lesson for the stable, most developed world economies? I don't believe so. There will always be economic crises and they will always impact IT infrastructures, as the economies are each day increasingly more dependent on them. The only way to survive a crisis of such magnitude is to be as prepared as possible and to continue to do one's job no matter what. However, if we had to enumerate the most important factors for survival (when the crisis is really big, one never succeeds, one just survives), we would find several common points:

1. Always have a plan "B"

Contingency plans are not only useful for natural disasters but for man made disasters as well. We are not talking here solely about wars. Some governments can ingeniously create their own economic disasters. And these disasters will not so much affect the physical infrastructures as they will impact the systems, the processes, and the people. If it is hard to plan ahead for this level of crisis, the consequences of not planning at all are potentially harder. Sometimes you don't need extensive plans or preferred options in order to obtain extra hardware with a provider⁵. Once the crisis starts, it doesn't really matter how much the performance improves or how much hardware is thrown over the infrastructure. Be prepared for that to fail as well. If your call center operators are not enough, ask yourself the following: are there people who had worked in that position before and who at present do not seem to have much work to do? Can you recover them? Being prepared for failures means to always have an extra option available, no matter how farfetched it looks. In a situation of crisis the only law that works is Murphy's.

2. Always make sure to have documented the way in which performance can be improved

One of our few successes during the crisis was due to the fact that our web site provider knew that the bank main web page performance could be improved just by reducing the frequency of the news updates. Then, working together we could implement the changes very fast, thus reducing one of the bottlenecks in our system.

In a system design, there is always a need for compromises. Some of these compromises involve performance, and sometimes we trade scalability_for functionality. But when the extra scalability is needed, the business user would gladly trade that functionality again for the advantage of having a decent response time for his clients. If the capacity planning team had these trade-offs documented, the proposed solutions could be implemented very quickly and save the day.

⁴ For once USA was not considered the main objective of the new migrants, the post 9/11 immigration controls and the change of the job market situation for the worst by the end of the "dot com" bubble, made other countries more attractive in the eyes of this new wave of migrants.

⁵ In a situation as generalized as the one that we are referring to in this paper, it is easy to imagine that no provider could comply with their hardware optional contracts. In fact I didn't know of any one that could do it during this particular crisis. It was always possible to sue them later on, but since they could obviously argue "extenuating circumstances" or "extreme hardship", the lawsuit would not prosper.

The documentation doesn't need to be extensive. Oftentimes it could be nothing more than an Excel or Word file containing the name of the system and the performance recommendations. I am referring to the same recommendations that were made by the capacity planning team at the time the system was designed, but which were then dismissed. The fact that the development or the support teams dismisses something doesn't mean that you have to dismiss it as well. It could simply be saved until the moment when it is needed the most.

3. Design the infrastructures to be as flexible as possible

Infrastructures can be flexible or not. A rigid infrastructure could reach the performance objectives just as much as a flexible one could, but in times of crisis flexibility pays off. An infrastructure made of small boxes could be more easily scalable than one made of one monolithic server. In our case that monolithic box was the mainframe. When our nightly batch process took longer than 12 hours to run, we asked our provider for extra CPU and memory. However, as all the banks were facing the same problem, they had made the exact same demand. At this point, the latter – irrespective of its size or the agreements signed with its customers - was unable to cope with the demands.

In contrast, those infrastructures made of Linux or Windows boxes were easily upgraded and were able to cope with the workload relatively fast. Perhaps they weren't as reliable as the mainframe, but in this particular case, they helped us keep pace with the demand.

4. Never underestimate “ad-hoc” solutions

My first boss used to say: “Never underestimate the bandwidth of a truck full of tape backups”. I remembered that phrase several times during those days because it helped me to not tie myself up to the “normal” way of working, forcing me instead to be imaginative and flexible. What my boss was trying to tell me was to “Never underestimate ad-hoc solutions.”

I will refer to the documentation (or rather the lack of it) later, but it is fair to say that we replaced documentation by the close proximity between the members of the team. Datacenter Operations, Technical Support, and Software Development were located in 4 adjacent floors of the same building, something that proved to be of much help in the worst moments of work. As this was the case, we didn't need to wait for an email response but could instead go and talk to them directly, have a quick exchange of ideas and solve the problem. If it is true that the advances in communications has helped us do things at a distance that were impossible before, it is not less true that, when you are trying to do things that you would have to be out of your mind to even suggest in more normal times, the importance of personal contact, body language and teamwork far outweighs the need to have everything documented.

Since everybody was in the same ship because the crisis was affecting us personally - we could see the protesters in the streets and hear the news referring almost exclusively to the financial problem 24 hours a day - it helped that we didn't have to deal with people located in the other side of the world who were not living through that crisis and could not possibly understand our sense of urgency.

5. Always keep an eye on your team's morale. You never know when you will need to ask of them extraordinary efforts.

The day that the President resigned, we were working in an office on the 8th floor of a building located two blocks away from the equivalent of the White House (which in Argentina is pink). Once the final big riot of the day erupted, the police used horses and tear gas to disperse the mob - without much effect or success. Several people had been shot and wounded in a radius of 4 blocks from our office. Finally, when the fumes of the tear gas from the street started to reach our floor we received the order to evacuate the building. However, at this point in time this was impossible due to the magnitude of the conflict still going on in the streets. We were finally able to leave the building a couple of hours later once the police cleared the streets and the danger has somewhat disappeared. Those were the kind of conditions under which the IT group was working.

Everybody was working extra hours, including nights and weekends; everyone was also keeping quiet about the condition of bank employees in order to avoid becoming the target of angry protesters. Most

had lost the savings they once had deposited in the same bank they were working so hard to save. Despite all this, I never heard any complaints. From the datacenter operators to the CIO, several levels above me, everybody was focused on doing the best they could to keep the bank afloat.

Perhaps technical people are more the “do it” type than the average man. But the fact that the area around the coffee machine had turned into a place where some sort of informal group therapy meetings took place was also a big help. It was there where teams could vent their anger and frustration without affecting their job.

There was another aspect to consider. The IT group knew that as soon as the crisis was over lay offs would necessarily follow. Everybody thought - and not without reason - that people would be laid off on the basis of their performance during those critical days. Consequently, they did their best to keep their jobs.

6. Be prepared to throw everything you know and care for out of the nearest window

Remember software quality? Documentation and carefully built software models? During the crisis, the approach was, “Do it now, document it later” poked by “if you think it works, it works”. Of course, this is not a valid way to work during regular times. But an extended crisis can hardly be equated to a regular time. Sometimes the Central Bank would issue a new regulation one day, just to change it a couple of days later. Documentation in those cases loses its sense because its purpose is to transmit information to other members of the team, or to remember how something was made. But at that speed of change, it became impossible to implement the changes while keeping up with the documentation at the same time. Therefore, models were no more than sketches on whiteboards in order to quickly transmit to the teams what had to be done.

We also had then an insane process of putting the modifications directly in production; the test was reduced to its bare bones, having development teams that passed whole applications from requirements to production in less than 24 hours.

7. And don't worry for what the top management thinks. In a really big crisis, top management has bigger problems than you!

In the description of the crisis I forgot to mention a small detail. During the last week of December 2001, one of the several short-lived Presidents at the time announced the default on all the government issued bonds. Do you remember the bonds that originated the crisis, those which the banks had been half coerced⁶ to buy? Well, following that announcement, they all went down to value zero. This means that after the crisis, the bank's general ledger showed as assets bonds that were worth at 0, mortgages that were worth 70% less than their former value and as liabilities deposits in pesos that had to be paid in full. As a result, most of the banks were now technically bankrupt. A Government's decree banning all bankruptcies procedures against banks for a period of two years avoided complete disaster.⁷

In that context, the upper management understood that we were doing our best and gave us all the support they could. They were clearly very busy trying to explain the crisis to their headquarters, estimating losses, and struggling to keep the business alive.

Conclusions

We know now that these kinds of crises are more common than we once thought they would be. On the one hand, most of the countries in the western world are heavily indebted; people are accustomed to living above their

⁶ I said half coerced because although the bonds would now be considered toxic debt, the banks had mixed feelings about them at the time. They knew that they were really dangerous, but for a time they looked really nice pushing up the banks profits as well as their executives' bonuses.

⁷ Yes, in Argentina it is possible to do that. It is not technically legal, but possible.

means, and several countries are showing difficulties in paying their debts. Like an addict that needs increasing doses of his favourite drug, some governments need more and more money to “rescue” their economies. On the other hand, banks are increasingly dependent on their IT infrastructure, thus the impact of this kind of financial crisis on the capacity and on the quality of service could be incredibly strong. Knowing the characteristics of a financial crisis and which area of the bank it will likely impact the most could become the most valuable tool in the elaboration of a contingency plan for your datacenter. I hope that this paper might help you be prepared for just that.