

# Rove Mobile Admin Cost Savings

# Introduction

Rove Mobile Admin is a product that enables system and network administrators to respond rapidly when something fails. By providing access to 500 functions across dozens of different types of servers and platforms through a range of smartphones, Mobile Admin enables IT professionals to recognize, diagnose and respond to issues as they arise without requiring access to a computer, console or laptop. The product increases IT responsiveness, which in turn minimizes system and network downtime by reducing the Mean Time to Recovery (MTTR).

By all estimates, the cost of downtime is disturbingly high. Depending on the industry and the application, analyst estimates range from \$45,000 per hour to over \$3M per hour . By estimating the downtime savings that Mobile Admin can generate and applying an estimate of the cost of downtime that is appropriate, organizations can project the cost savings that will be generated by deploying Rove Mobile Admin. This paper enables those cost savings projections by presenting a model that will allow organizations of all sizes to estimate the downtime savings that they can expect from Mobile Admin.

# Methodology

One of the challenges when constructing a model such as this is accounting for the differences in IT system size and complexity for companies of different sizes. Our approach will be to estimate the cost savings for a small company of 100 employees with 2 system administrators, and then extrapolate those savings for larger organizations. To achieve this, we need to quantify the difference in scale and complexity between a company of 100 employees and companies of up to 100,000 employees. The larger companies will have a wider variety of services and systems deployed, and each one of these systems will be substantially larger and more complex. As the number of pieces and parts of a system increases, so too does the potential for something to go wrong.

To quantify this growth factor, it is useful to consider the differences between the IT teams of companies at both ends of the scale:

- The IT teams grow bigger linearly. An industry average is two IT professionals for every 100 employees. The number of potential Mobile Admin users grows proportionally with the overall size of the IT team.
- The systems administrators specialize. Whereas the two administrators in a 100 person company are responsible for all of the systems, a large company will typically have separate groups for messaging, networking, voice communications, database systems, web systems etc.

To account for these changes in our cost estimation model, we will define a “size and complexity” factor. By definition, we will set the factor at 1 for a 100 person company with 2 systems administrators. For a company that is 1,000 times larger (100,000 employees), we will assume that at least 8 different IT groups will exist, and each one will be at least 5 times larger than the original IT team at the 100 person company. This will give the 100,000 employee company a “size and complexity factor” of 40. As the size and complexity grows, the corporate systems become more interdependent, and there are diminishing returns that can be achieved in terms of reducing the cost of downtime. Therefore, the growth of the size and complexity factor from 1 to 40 is non-linear, and can be represented as shown in figure01.

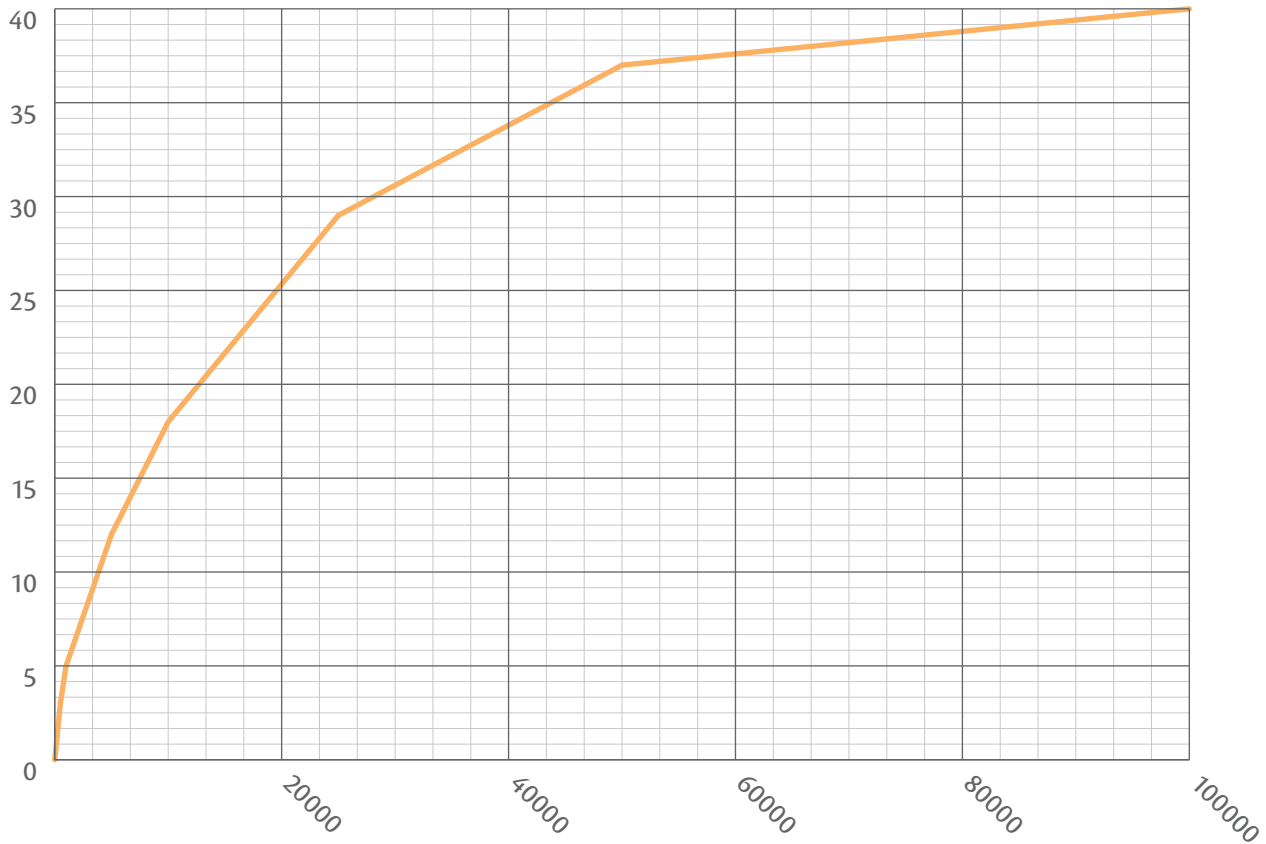


Figure 01

— Size and Complexity Factor

The advantage to taking this approach is that we can estimate the savings that Mobile Admin will generate for a 100 person company and can then extrapolate those savings for organizations of any size simply by using the size and complexity factor based on the number of employees that exist. By assigning a very conservative factor of 40 to the 100,000 employee company, we can ensure that these extrapolations remain grounded and realistic.

# Using Mobile Admin

The first step in understanding the cost savings that Mobile Admin will generate is to understand the various scenarios under which Mobile Admin is used on a day-to-day basis. For this analysis, we will focus only on those scenarios that involve responding to unplanned issues, leaving aside the many use cases that involve scheduled or expected management tasks that can be performed remotely using Mobile Admin. In addition, we will focus on the items that Mobile Admin can manage, which include MS Windows servers, UNIX and Linux servers, directory services, email environments, database servers, virtual server infrastructure, network devices and more. Furthermore, we will assume that the time to detection for the issue is constant and independent of Mobile Admin – in practice, the product does enable convenient and proactive monitoring of system status and health, but we will assume that the issue is detected through some alarming mechanism, and is escalated to a given system administrator. The process by which detection and escalation occurs can vary extensively from company to company, but in all cases the result of these processes will be that our system administrator is alerted and expected to respond.

There are several possible conditions under which this will occur:

- The system administrator is in the office and at his desk. He will respond using his desktop computer rather than Mobile Admin.
- The system administrator is in the office, but away from his desk. He could be at a specific user's desk helping out with another issue, on break or in a meeting. By using Mobile Admin running on his smartphone client to respond to the issue instead of returning to his desk, he can save an average of ten minutes of time in this scenario.
- The system administrator is out of the office, but has access to a laptop computer. Rather than booting up the computer and connecting to the network, he uses Mobile Admin on his smartphone to respond to the issue immediately and saves an average of fifteen minutes.

- The system administrator is out of the office and without access to a laptop or computer. Perhaps he is commuting to work or out at her child's soccer game. In this case, the ability to recognize and deal with the issue using Mobile Admin can save hours of time. For the purposes of this analysis, we will estimate an average savings of one hour for this use case.

In all of the above scenarios, Mobile Admin offers the system administrator the ability to examine log files and run diagnostic tests to understand the issue. The product provides access to over 500 different functions from dozens of different types of servers, enabling the system administrator to modify configurations, restart services, unlock accounts, reset passwords, adjust job priorities and perform countless other tasks. If the issue at hand is beyond the scope of Mobile Admin to address (for example, a hardware failure), it may still be possible to save on recovery time if the system administrator can determine the cause of the problem remotely, and then call an appropriate resource on site to perform the necessary work. Overall, Mobile Admin can be used to address over 75% of the issues that IT professionals face.

# System Administrator Behavior Patterns

To estimate the frequency with which the various Mobile Admin use cases present themselves, we will make some high level assumptions about the behavior of a typical system administrator. Naturally this behavior is highly dependent on the specific policies and procedures in place at each organization, but there are certain consistencies that can be applied. In general, the role is heavily driven by interruptions, and it requires that time is spent both at a desk and in one or more server rooms. Based on discussions with existing customers, the following assumptions are reasonable:

- While at the office a typical system administrator spends:
  - 25% of the time at his desk
  - 25% in a server room
  - 50% elsewhere
- While away from office a typical system administrator spends :
  - 15% of his time commuting to or from work (with no access to desktop or laptop)
  - 65% of his time at home (with access to desktop or laptop)
  - 20% of his time out and about (no access to desktop or laptop)

Recalling that a 100 person company will have two IT professionals, IT departments at organizations of this size will usually define overlapping responsibilities so that the organization will have both a primary system administrator and a back-up system administrator. If we assume that both administrators exhibit the same behavior patterns, then we can calculate the following probabilities:

Number of System Administrators	Probability of all System Administrators being away from desk or server room while at work	Probability of all System Administrators being away from a laptop or desktop when out of the office
1	50%	35%
2	25%	12.25%

# Downtime Estimates

The availability of a network or a business application is generally expressed as a percentage of time. The following table relates availability figures to downtime.

<b>Availability</b>	<b>Annual downtime</b>
99%	88 hours
99.9%	8.8 hours
99.99%	52 minutes
99.999%	4.8 minutes
99.9999%	0.5 minutes

In a recent study, ITIC surveyed hundreds of mid to large sized companies and examined the availability of their major business applications<sup>2</sup>. According to their research:

- 41% of corporations run between 99% and 99.9%
- 29 % of corporations run between 99.9% and 99.99%
- 23% of corporations are unsure
- 7% or corporations run between 99.99% and 99.999%

This is not surprising, as it has traditionally taken a very large investment in equipment and resources to achieve an availability of 99.99% or higher. Indeed, it can be safely assumed that those companies who are unsure of the availability of their networks are running between 99% and 99.9%, because anything higher would have required a targeted effort that would be unlikely to have escaped the notice of the senior IT professionals who were surveyed.

Based on anecdotal information, the average duration of an outage or issue is close to two hours. Companies that have invested in increasing their availability can reduce that number by reducing the time to detection of the problem, by increasing staff coverage and by increasing redundancy at the hardware level. With this information, we can estimate the total number of outages when running at different availabilities:

<sup>2</sup>“Stratus Application Availability Survey Final Results and Comments” ITIC, February 2009.

Percentage of companies (from the ITIC numbers above)	Availability	Average duration of downtime per outage <i>*based on anecdotal information</i>	Average Annual downtime	Number of outages (Annual)
64%	99% - 99.9%	2 hrs	48 hrs	24
29%	99.9% - 99.99%	1 hr	4.8 hrs	5
7%	99.99 - 99.999%	28 min	28 min	1
Average	99.63%	1.8 hrs	32 hrs	17 <sup>3</sup>

An even distribution of outages over time would imply that 37.5% of problems occur during business hours (8am to 5pm) and 62.5% occur during off hours. Organizations with offices in multiple time zones often extend their IT staffing to offer broader coverage. If all US time zones are covered, the distribution of outages would be 50% during business hours (8am EST to 5pm PST) and 50% during off hours. For the purposes of this analysis, that distribution will be used to provide a conservative estimate of savings.

<sup>3</sup> The average number of outages for all availability levels is equal to the weighted average of companies with varying availabilities and their corresponding number of outages.

# Estimating Mobile Admin Cost Savings

Given the forgoing estimates of system outages, system administrator behavior and Mobile Admin use cases, the projected time savings can be calculated as follows:

$$\left[ \begin{array}{l} 50\% \text{ of failures} \\ \text{during business hours} \end{array} \times \begin{array}{l} 50\% \text{ system administrators} \\ \text{are at their desks} \end{array} \times 10 \text{ min} \times 75\% \right] + \\
 \left[ \begin{array}{l} 50\% \text{ of failures} \\ \text{during off hours} \end{array} \times \begin{array}{l} 50\% \text{ system administrators} \\ \text{are not near a computer} \end{array} \times 60 \text{ min} \times 75\% \right] + \\
 \left[ \begin{array}{l} 50\% \text{ of failures} \\ \text{during off hours} \end{array} \times \begin{array}{l} 50\% \text{ system administrators} \\ \text{have computer access} \end{array} \times 60 \text{ min} \times 75\% \right] =$$

13.4 min per system outage, assuming one single system administrator

Similarly, if a second system administrator is added to increase the coverage, the downtime savings can be calculated to be 8.6 minutes per outage. (See Appendix A – I for this calculation)

Given the weighted average of 17 outages per year, this yields a projected downtime savings of 2.4 hours per year generated by Mobile Admin for our 100 person company.

# Extrapolating the Estimate

Given the savings that can be generated for a 100 person company, it is possible to extrapolate the savings across organizations of different sizes by applying the size and complexity factor that we defined earlier.

Number of Employees	Size and Complexity Factor	Annual Mobile Admin Time Savings hrs
100	1	2
500	3	7
1,000	5	12
5,000	12	29
10,000	18	44
25,000	29	71
50,000	37	90
100,000	40	98

# The Cost of Downtime

The cost of downtime varies greatly from industry to industry and from application to application. A quick Internet search turns up dozens different estimates based on analyst research, academic theory or specific operational metrics. The lowest estimates are in the range of \$45,000 per hour, and the highest are over \$3,000,000 per hour.<sup>4</sup>

Applying even the very lowest estimates to the time savings that we have calculated for Mobile Admin yields some extremely compelling projections of cost savings. For example, the 100 person company with an average time savings of 8.6 minutes per outage generates an annual savings of at least \$109,000! (See Appendix A – 2 for the calculation)

As the size and complexity of the organization grows, so too does the opportunity to reduce downtime and generate savings. The projected savings for companies of various sizes are shown below.

Number of Employees	Size and Complexity Factor	Annual Mobile Admin Time Savings hrs	Minimum Projected Annual Mobile Admin Cost Savings
100	1	2	\$109K
500	3	7	\$329K
1,000	5	12	\$548K
5,000	12	29	\$1.3M
10,000	18	44	\$1.9M
25,000	29	71	\$3.1 M
50,000	37	90	\$4.0 M
100,000	40	98	\$4.3 M

<sup>4</sup> “The Costs of Enterprise Downtime, North America 2004,” Infonetics Research, February 2004.

This white paper describes a model that can be used to estimate the time and cost savings that Rove Mobile Admin can generate. Considering the proven Mobile Admin use cases and applying conservative estimates and averages for the other parameters clearly shows that the solution offers tremendous opportunities for cost savings through better responsiveness to IT issues. For typical organizations, whose business application availability is in the 99%-99.9% range, the benefits are extremely dramatic. Even those companies who have invested in higher availability for their critical business applications can further optimize their IT responsiveness using Mobile Admin, generating even greater cost savings.

This model is designed to be applicable for organizations to project their own cost savings. You can replace some or all of the estimates and corporate averages with known operational metrics from your own business to gain greater insight into the savings that Mobile Admin will generate for you. For assistance with this process, or for more information about the benefits of Mobile Admin, contact Rove or your Rove partner.

# Appendix A

1 - Calculation of System outage when there are two administrators:

$$\begin{aligned}
 & \left[ 50\% \text{ of failures during business hours} \times 25\% \text{ system administrators are at their desks} \times 10 \text{ min} \times 75\% \right] + \\
 & \left[ 50\% \text{ of failures during off hours} \times 12.25\% \text{ system administrators are not near a computer} \times 60 \text{ min} \times 75\% \right] + \\
 & \left[ 50\% \text{ of failures during off hours} \times 87.75\% \text{ system administrators have computer access} \times 15 \text{ min} \times 75\% \right] =
 \end{aligned}$$

8.63 min per system outage, assuming one single system administrator

2 - Calculation of Minimum Projected Annual Mobile Admin Cost Savings

$$\text{Annual Mobile Admin Cost Savings} = \left[ \left[ \text{Length of downtime per system outage} \times \text{Avg. number of system outages per year} \right] \div 60 \right] \times \text{Cost of downtime per hour}$$

Actual Annual Mobile Admin Cost Savings Calculation in Practice

$$\left[ \left[ 8.63 \text{ min} \times 17 \times 01 \right] \div 60 \right] \times \$45,000.00 = \$109,743.00$$

<sup>5</sup>"Administrator Commuting to and from work" plus "Administrator not at home with no access to laptop or computer" squared