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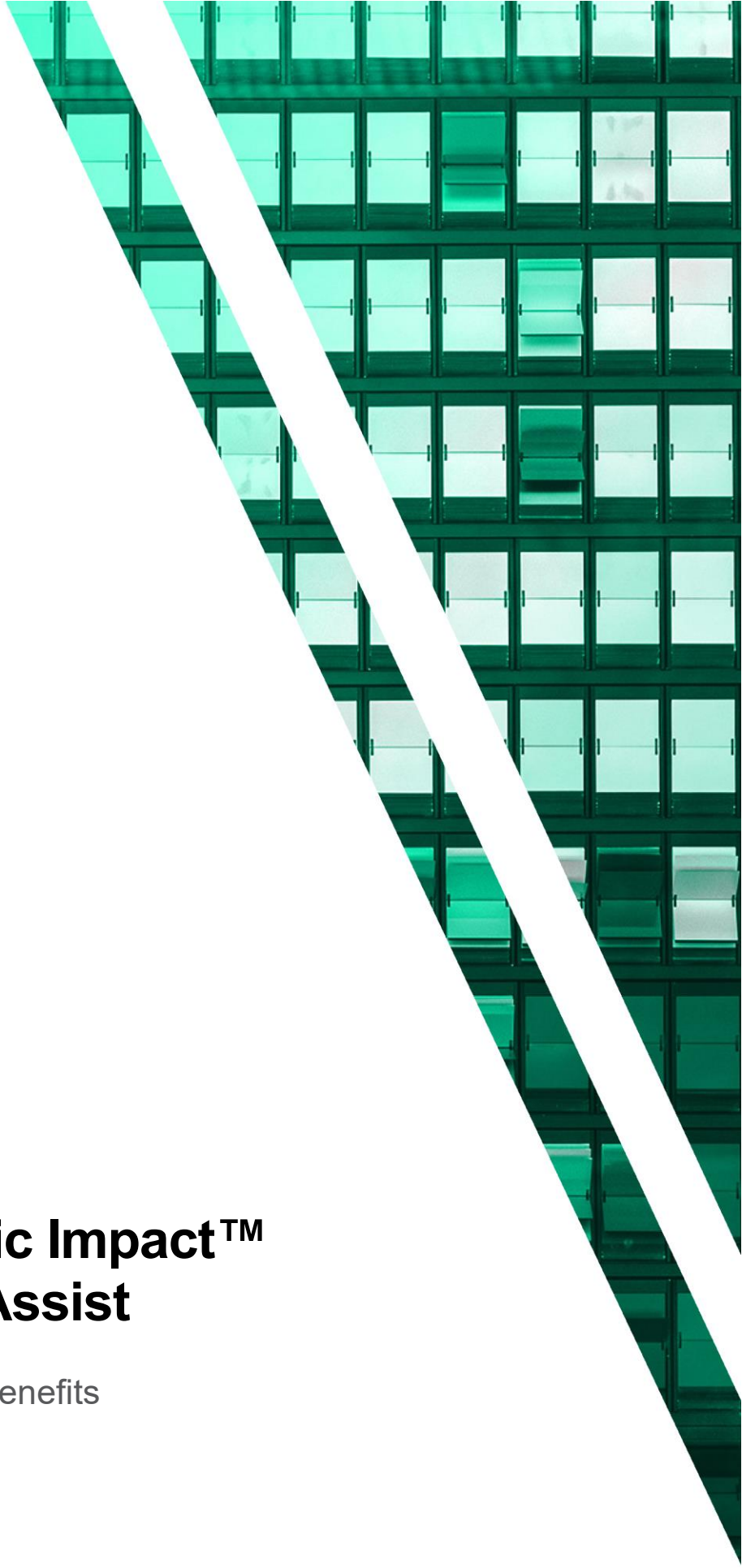

The Total Economic Impact™ Of Google Active Assist

Cost Savings And Business Benefits Enabled By Active Assist

JUNE 2022

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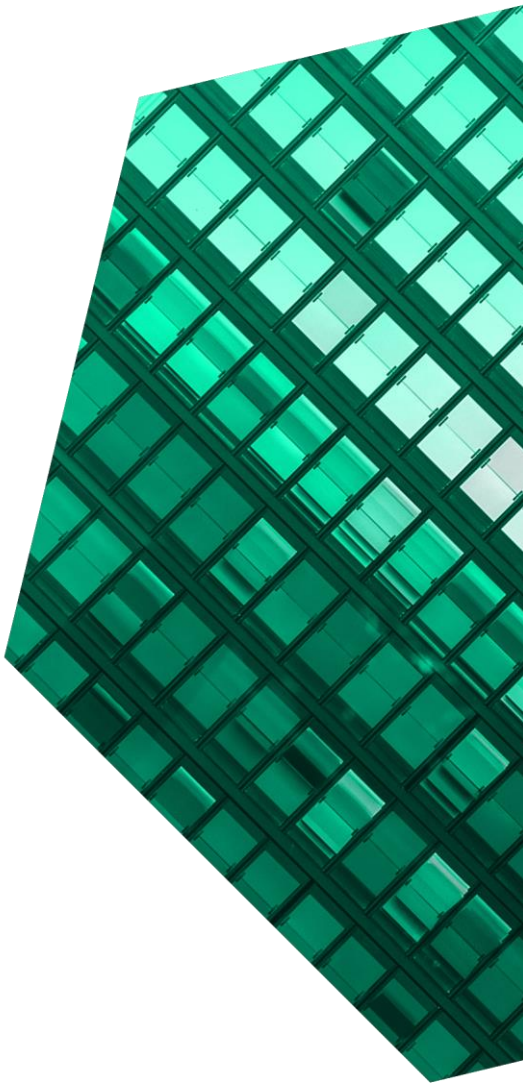


ABOUT FORRESTER CONSULTING

Forrester Consulting provides independent and objective research-based consulting to help leaders succeed in their organizations. For more information, visit forrester.com/consulting.

Executive Summary

Historically, enterprises expected “just enough” management capabilities from their cloud service providers and supplemented any shortcomings with additional tools. However, as cloud providers increasingly acquire these capabilities for themselves, organizations are recognizing and leveraging the advantages of native cloud management tools for purposes such as cloud cost, network, and permissions management.[1]

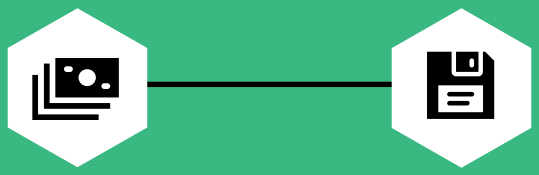
Google Active Assist is a portfolio of tools that helps organizations optimize cloud operations with recommendations to reduce costs, increase performance, and improve security. Google commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying Active Assist. The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of Active Assist on their organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed four decision-makers with experience using Active Assist. For the purposes of this study, Forrester aggregated the interviewees’ experiences and combined the results into a single composite organization.

Prior to using Active Assist, these interviewees struggled with high cloud usage bills, burdensome permissions access management, and low visibility to a potentially exposed security perimeter. After the investment in Active Assist, interviewees significantly improved their cloud operations by either assisting or automating labor-intensive and error-prone manual tasks.

Key results from the investment include efficiencies across cloud compute, network, permissions, and security, as follows:

KEY STATISTICS



Reduced cloud consumption costs (internal applications)
40%

Fewer overprovisioned service accounts
15%

KEY FINDINGS

Quantified benefits. Risk-adjusted present value (PV) quantified benefits include:

- **Reduction in GCP consumption costs across internal applications.** Using Active Assist, organizations right-sized virtual machines (VMs) and removed idle VMs to optimize overall cloud consumption costs on GCP. Even though these actions could have been deployed across all applications in the enterprise, interviewed organizations opted to use Active Assist to manage the consumption of resources only for internal applications, since customer-facing applications had stricter SLAs (service level agreements) and expectations on uptime. For impacted workloads, Active Assist reduced overall consumption by 40%, resulting in a three-year present value cost savings of $2.5M.

- **Fewer security breaches caused by lateral attack vectors.** Organizations felt confident that they had almost entirely eliminated the risk of lateral security breaches by using Active Assist's IAM recommender engine. At an average of two lateral attack incidents per year, the avoided risk achieved through enhanced security and access management resulted in a three-year present value cost savings of $68K.
- **Fewer overprovisioned service accounts.** In addition to enhancing their security posture, organizations also benefitted from streamlining manual reviews of user permissions. When configured effectively, Active Assist could automatically remove idle service accounts after a specified length of time, thereby significantly reducing the effort required for IAM administration. Over three years, the associated cost savings totaled a present-value cost savings of $26K.
- **Greater network visibility resulting in faster troubleshooting.** With each network configuration change, organizations often experienced minor downtime events resulting from network failures. Network Intelligence allowed these organizations to quickly diagnose and connectivity issues by mapping the network technology, allowing network administrators to quickly troubleshoot any network-related downtime events. This time savings benefit accumulated to a present-value cost savings of $3K over three years.

Unquantified benefits. Benefits that are not quantified for this study include:

- **Meeting sustainability commitments.** Active Assist allowed organizations to meet some of their ESG (environmental, social, and governance) commitments by reducing cloud infrastructure consumption and, consequently, reducing carbon footprint.

Costs. While organizations did not incur any product licensing costs from Active Assists, they still made soft investments to ensure initial and ongoing maintenance, training, and adoption. Risk-adjusted PV costs include:

- **Active Assist configuration costs.** Organizations continually adjusted the thresholds and parameters evaluated by Active Assist's recommendation engines based on changing needs of each application. The time associated with these configurations resulted in a three-year cost present value of $154,060.
- **Training and onboarding costs.** Active Assist training consisted of an initial onboarding period and a brief testing period for any configuration or feature changes in subsequent years post deployment. The total cost associated with training and onboarding totaled a three-year present value of $139K.

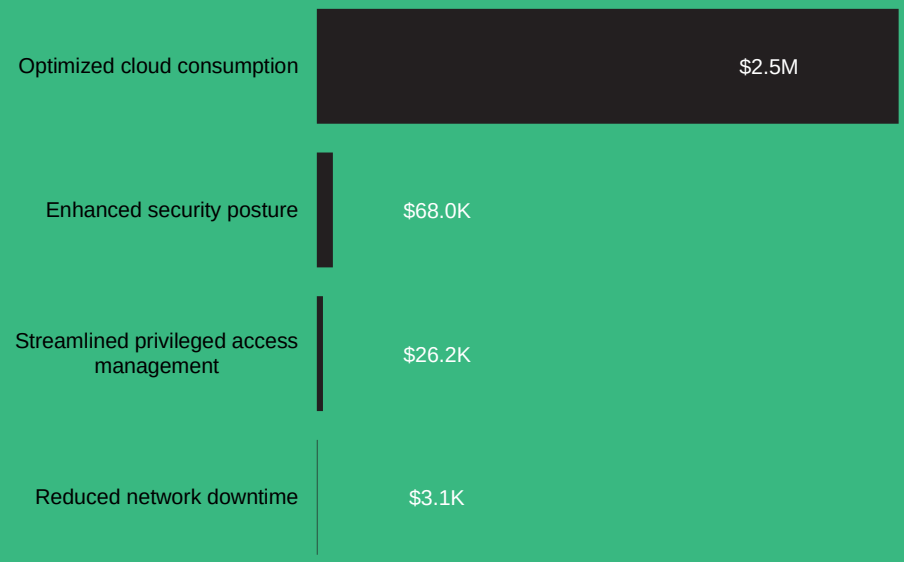
The decision-maker interviews and financial analysis found that a composite organization experiences benefits of $2.6M over three years versus costs of $300K, adding up to a net present value (NPV) of $2.3M and an ROI of 781%.

ROI
781%

BENEFITS PV
$2.6M

NPV
$2.3M

Benefits (Three-Year)



“How much does Active Assist help? Without it, we’d have to manage hundreds of applications times thousands of virtual machines, each one needing individual configurations. It would be a nightmare.”

— Senior DevOps lead, retail

TEI FRAMEWORK AND METHODOLOGY

From the information provided in the interviews, Forrester constructed a Total Economic Impact™ framework for those organizations considering an investment in the Active Assist.

The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision. Forrester took a multistep approach to evaluate the impact that the Active Assist can have on an organization.

DUE DILIGENCE

Interviewed Google stakeholders and Forrester analysts to gather data relative to the Active Assist.

DECISION-MAKER INTERVIEWS

Interviewed 4 decision-makers at organizations using the Active Assist to obtain data with respect to costs, benefits, and risks.

COMPOSITE ORGANIZATION

Designed a composite organization based on characteristics of the interviewees' organizations.

FINANCIAL MODEL FRAMEWORK

Constructed a financial model representative of the interviews using the TEI methodology and risk-adjusted the financial model based on issues and concerns of the decision-makers.

CASE STUDY

Employed four fundamental elements of TEI in modeling the investment impact: benefits, costs, flexibility, and risks. Given the increasing sophistication of ROI analyses related to IT investments, Forrester's TEI methodology provides a complete picture of the total economic impact of purchase decisions. Please see Appendix A for additional information on the TEI methodology.

The Google Active Assist Customer Journey

Drivers leading to the Active Assist investment

Interviewed Decision-Makers

Interviewee	Industry	Operating regions	Revenue
Head of cloud operations	Software	Global	$250M to $1B
Technical product manager	Streaming	Global	$1B to $10B
DevOps engineer	Sports	North America	$10B to $100B
Senior DevOps lead	Retail	North America	$100B+

KEY CHALLENGES

Organizations struggled with the following challenges prior to engaging Google Active Assist:

- **Unmanaged and costly cloud consumption.** Lack of governance and analytics related to cloud consumption caused organizations to rack up large cloud usage bills. For example, organizations would often procure too many virtual machines for projects that were not customer facing or critical, resulting in significant percentages of unused compute and storage. As organizations grew, the costs associated with unmanaged spend compounded, driving up IT and operational costs.

"We have hundreds of apps and for each of them, we were either constantly monitoring CPU or pre-scaling virtual machines and throwing away money."

Senior DevOps lead, retail

"We used to painstakingly go through each individual project to audit for overprovisioned accounts."

DevOps engineer, sports

- **Manual permissions and network management.** Lack of automation caused organizations to engage in a number of manual operational tasks. Cloud operations teams reviewed and managed permissions manually, leaving room for error or oversight while taking away valuable time that could be used analyzing and optimizing cloud consumption. Similarly, network operations teams troubleshooted network issues manually, wasting valuable time and lengthening costly downtime events.
- **Lateral security risks caused by manual error or oversight.** Prior to Active Assist, development teams would often self-configure permissions

followed by someone from cloud operations manually reviewing these permissions. In addition to the aforementioned operational burden associated with manually assigning or removing permissions, this process also created a potential lateral security risk. If overlooked, accounts could easily be overpermissioned or remain active after the close of a project, allowing for hackers to use these overlooked accounts to potentially access sensitive data.

"We had one scary incident where the attacker was able to move laterally into other projects using overprovisioned service accounts. Our whole security team had to work over several weeks to contain it."

Technical product manager, streaming

Key assumptions

- **Retail organization**
- **$1B annual revenues**
- **300 enterprise apps**
- **600 GCP projects**
- **9,000 service accounts**

COMPOSITE ORGANIZATION

Based on the interviews, Forrester constructed a TEI framework, a composite company, and a ROI analysis that illustrates the areas financially affected. The composite organization is representative of the four decision-makers that Forrester interviewed and is used to present the aggregate financial analysis in the next section. The composite organization has the following characteristics:

Description of composite. The composite organization is a global retail company with annual revenues of $1B and 2700 employees on its payroll. The organization has 300 enterprise applications, which are all built on Google Cloud infrastructure. These applications have 600 projects and 9,000 service accounts associated with them.

Analysis Of Benefits

Quantified benefit data as applied to the composite

Total Benefits						
Ref.	**Benefit**	**Year 1**	**Year 2**	**Year 3**	**Total**	**Present Value**
Atr	Optimized cloud consumption	$997,272	$997,272	$997,272	$2,991,816	$2,480,068
Btr	Enhanced security posture	$27,360	$27,360	$27,360	$82,080	$68,040
Ctr	Streamlined privileged access management	$10,530	$10,530	$10,530	$31,590	$26,187
Dtr	Reduced network downtime	$1,231	$1,231	$1,231	$3,694	$3,062
	Total benefits (risk-adjusted)	$1,036,393	$1,036,393	$1,036,393	$3,109,180	$2,577,357

OPTIMIZED CLOUD CONSUMPTION

Evidence and data. While interviewed organizations differed with respect the degree of automation they felt comfortable configuring into Active Assist, all organizations used it to meaningfully reduce overall GCP consumption spend. This benefit is primarily due to having additional governance and visibility, which allowed organizations to granularly monitor VM utilization by parameters such as GCP project, time of day, and development environment. With this visibility, organizations could then choose to automate scaling of VMs or use it as an assisted tool for recommendations.

Some of the most significant cost savings came from closely monitoring non-production environments, such as QA environments or user application test environments. Without Active Assist, development teams would often forget to turn these machines off after a project closed, resulting in wasted cloud consumption and spiraling costs.

Modeling and assumptions. Forrester makes the following assumptions to calculate optimized cloud consumption benefits through Active Assist:

- The organization manages 300 applications, which include internal and customer-facing applications.
- The average cost per GCP virtual machine is $54. Cost will vary based on factors such as type of machine and memory requirements.

> **“We had some projects with as many as 18 virtual machines and only 3 machines in a production environment. The cost savings opportunity was big.”**
>
> *Head of cloud operations, software*

Risks. Benefits of optimized cloud consumption experienced by other organizations may vary based on the following factors:

- The types of applications optimized through Active Assist will impact the magnitude of benefits. For example, including customer-facing

applications under the Active Assist portfolio in addition to internally-facing applications will increase the potential cloud cost savings.

- The types of virtual machines procured will impact any cost savings as reducing more expensive VMs will result in larger cost reductions.

Results. To account for these risks, Forrester adjusted this benefit downward by 25%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $2,480,068.

Optimized Cloud Consumption

Ref.	Metric	Source	Year 1	Year 2	Year 3
A1	Number of enterprise applications	Assumption	300	300	300
A2	Percentage of applications that are internally-facing	Interviews	57%	57%	57%
A3	Number of internally-facing applications	A1*A2	171	171	171
A4	Average number of virtual machines per internally-facing application, before Active Assist	Interviews	30	30	30
A5	Average number of virtual machines per internally-facing application, after Active Assist	Interviews	18	18	18
A6	Reduction in number of VMs needed to run internal applications with Active Assist	A4-A5	12	12	12
A7	Average monthly cost per GCP virtual machine	Assumption	$54	$54	$54
At	Optimized cloud consumption	A3*A6*A7*12	$1,329,696	$1,329,696	$1,329,696
	Risk adjustment	↓25%			
Atr	Optimized cloud consumption (risk-adjusted)		$997,272	$997,272	$997,272
	Three-year total: $2,991,816			**Three-year present value: $2,480,068**	

ENHANCED SECURITY POSTURE

Evidence and data. Interviewed organizations lacked the governance and automation needed to effectively manage cloud permissions at scale. Some organizations relied on a small operations team to manually configure and manage GCP permissions while others allowed individual development teams to manage their own permissions. Either method left significant risks of manual error or negligence when starting or closing a project. Consequently, these

Note that the following security benefits exclude the direct financial and reputational costs of security incidences.

organizations exposed themselves to any number of security threats in which a hacker could leverage an overpermissioned account to move laterally towards more sensitive data.

With Active Assist, organizations were confident they had eliminated this lateral attack vector due to the following factors:

- When creating a service account, Active Assist sent warnings and notifications when access was too wide for the specific role.
- Permissions could be removed automatically at project close based on predefined criteria, eliminating vacant service accounts.

Modeling and assumptions. Forrester makes the following assumptions to calculate enhanced security posture benefits through Active Assist:

- There are 8 FTEs on the security operations team. During security incidences, all 8 FTEs must be engaged to resolve the security breach and restore normal operations.
- The average hourly rate per security operations engineer is $60. This includes a 25% salary markup for benefits overhead.

> **"We removed a couple thousand editor and owner roles, which accounted for roughly 10 million permissions. It was a huge reduction in risk."**
>
> *Technical product manager, streaming*

Risks. Benefits of enhanced security posture experienced by other organizations may vary based on the following factor:

- Existing privileged access management protocols and tools will dictate the magnitude of benefits experienced. Organizations with less governance around privileged identities may see greater

Enhanced Security Posture

Ref.	Metric	Source	Year 1	Year 2	Year 3
B1	Number of security breaches caused by lateral attack vectors	Interviews	2	2	2
B2	Number of FTEs in security operations team	Assumption	8	8	8
B3	Time required to resolve security breach caused by lateral attack vector, in hours	Interviews	30	30	30
B4	Fully-burdened hourly salary per security operations engineer	Assumption	$60	$60	$60
Bt	Enhanced security posture	B1*B2*B3*B4	$28,800	$28,800	$28,800
	Risk adjustment	↓5%			
Btr	Enhanced security posture (risk-adjusted)		$27,360	$27,360	$27,360
	Three-year total: $82,080			**Three-year present value: $68,040**	

benefits while those with more governance in place already may see smaller benefits.

Results. To account for this risk, Forrester adjusted this benefit downward by 5%, yielding a three-year, risk-adjusted total PV of $68,040.

STREAMLINED PRIVILEGED ACCESS MANAGEMENT

Evidence and data. In addition to enhancing security, Active Assist also reduced the operational burden associated with privileged access management. Prior to Active Assist, organizations would need to manually adjust or remove thousands of overpermissioned service accounts. With Active Assist, this task can be fully automated, freeing up operations capacity for more value-added activities.

Modeling and assumptions. Forrester makes the following assumptions to calculate streamlined privileged access management benefits through Active Assist:

- The composite organization has an average of 600 active GCP projects per year, or two projects per application.
- The average hourly rate per cloud operations engineer is $65. This includes a 25% salary markup for benefits overhead.

Risks. Benefits of streamlined privileged access management experienced by other organizations may vary based on the following factor:

- The effectiveness of existing identity governance policies will dictate the percentage of existing service accounts that are overprovisioned and therefore the benefits experienced by streamlining the task of removing excess permissions.

Results. To account for this risk, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of $26,187.

“Without Active Assist, we would have had to introduce a manual control to clean up permissions by sending out notifications to all of our feature teams. It would have been a highly manual and error-prone process with reliability risks.”

Technical product manager, streaming

Note that the following security benefits exclude the direct financial and reputational costs of security incidences.

Streamlined Privileged Access Management					
Ref.	**Metric**	**Source**	**Year 1**	**Year 2**	**Year 3**
C1	Number of GCP projects	Assumption	600	600	600
C2	Number of service accounts per GCP project	Interviews	15	15	15
C3	Total GCP service accounts	C1*C2	9,000	9,000	9,000
C4	Percentage of GCP service accounts that are overprovisioned	Interviews	15%	15%	15%
C5	Number of overprovisioned accounts	C3*C4	1,350	1,350	1,350
C6	Total FTE time needed to manually adjust or remove overprovisioned account, in minutes	Interviews	8	8	8
C7	Fully-burdened hourly salary per cloud operations engineer	Assumption	$65	$65	$65
Ct	Streamlined privileged access management	(C5*C6*C7)/60	$11,700	$11,700	$11,700
	Risk adjustment	↓10%			
Ctr	Streamlined privileged access management (risk-adjusted)		$10,530	$10,530	$10,530
	Three-year total: $31,590			**Three-year present value: $26,187**	

REDUCED NETWORK DOWNTIME

Evidence and data. Organizations periodically made configuration changes to improve the performance or uptime of their networks. However, manual changes would often result in configuration errors and subsequent network downtime. With Active Assist, organizations could easily view the topology of their networks, including any critical dependencies. Because of this added visibility, network operations teams could quickly diagnose the source of any errors and restore downtime.

Modeling and assumptions. Forrester makes the following assumption to calculate reduced network downtime benefits through Active Assist:

- The average hourly rate per network operations engineer is $45. This includes a 25% salary markup for benefits overhead.

"Network Intelligence helps us from making silly mistakes because it shows us how all the dots in our network are connected and flags us when something is amiss."

DevOps engineer, sports

Risks. Benefits of reduced network downtime experienced by other organizations may vary based on the following factor:

- The reliability of the organization's existing network will determine the number of downtime events experienced and therefore the potential benefits experienced by using Active Assist to troubleshoot network downtime events.

Results. To account for this risk, Forrester adjusted this benefit downward by 5%, yielding a three-year, risk-adjusted total PV of $3,062.

Reduced Network Downtime

Ref.	Metric	Source	Year 1	Year 2	Year 3
D1	Number of downtime events	Interviews	96	96	96
D2	Number of downtime events caused by network configuration changes	D1*75%	72	72	72
D3	Time required to troubleshoot network configuration downtime, prior to Active Assist, in hours	Interviews	0.5	0.5	0.5
D4	Time required to troubleshoot network configuration downtime, with Active Assist, in hours	Interviews	0.10	0.10	0.10
D5	Reduction in time required to troubleshoot network configuration downtime using Active Assist, in hours	D3-D4	0.40	0.40	0.40
D6	Fully-burdened hourly salary per network operations engineer	Assumption	$45	$45	$45
Dt	Reduced network downtime	D2*D5*D6	$1,296	$1,296	$1,296
	Risk adjustment	↓5%			
Dtr	Reduced network downtime (risk-adjusted)		$1,231	$1,231	$1,231
	Three-year total: $3,694			**Three-year present value: $3,062**	

UNQUANTIFIED BENEFITS

Additional benefits that customers experienced but were not able to quantify include:

- **Meeting sustainability commitments.** With the increasing tax, cost savings, and reputational benefits of adopting environmental, social, and governance (ESG) standards, many companies are looking to their technology providers to help meet any internally or government-driven sustainability mandates and expectations. Active Assist naturally helps organizations do this by reducing overall cloud infrastructure consumption, thereby reducing overall carbon emissions. As one organization said, "Active Assist helps us understand, reduce, and report on our carbon usage, which is becoming increasingly important to our organization."

FLEXIBILITY

The value of flexibility is unique to each customer. A scenario in which a customer might implement Active Assist and later realize additional uses and business opportunities includes:

- **Training DevOps teams.** Organizations that used Active Assist's recommender engines for cost savings all spoke to the benefit of not only programmatically reducing costs, but also simply being able to educate their DevOps teams on how to manage cloud resources and what to look out for when procuring and consuming resources on the cloud. Because of this inherent upskilling effect, DevOps teams gained valuable skills that allowed for more strategic and organizationally aware decision making. As one interviewee stated, "There's a real benefit to teaching and upskilling people because it helps them see the things they should be spotting. When new developers come into cloud computing, one of the biggest mistakes they make is not understanding that building on the cloud is not the same as building on a Mac laptop."

Flexibility would also be quantified when evaluated as part of a specific project (described in more detail in Appendix A).

Analysis Of Costs

Quantified cost data as applied to the composite

Total Costs							
Ref.	**Cost**	**Initial**	**Year 1**	**Year 2**	**Year 3**	**Total**	**Present Value**
Etr	Active Assist configuration costs	$26,910	$51,129	$51,129	$51,129	$180,297	$154,060
Ftr	Training and onboarding costs	$77,440	$0	$38,720	$38,720	$154,880	$138,531
	Total costs (risk-adjusted)	$104,350	$51,129	$89,849	$89,849	$335,177	$292,591

ACTIVE ASSIST CONFIGURATION COSTS

Evidence and data. While organizations found Active Assist to be largely self-sufficient, operations teams still needed to define and configure the initial parameters and tweak them over time to experience optimal results. These teams continuously tested factors such as VM automation, scaling speed, and timing to determine the optimal setup for the organization's unique environment. On average, initial configuration consisted of a three-week sprint with a small team of cloud operations engineers while ongoing configurations required approximately one hour per application, per quarter.

Modeling and assumptions. Forrester makes the following assumption to calculate configuration costs of Active Assist:

- The average hourly rate per cloud operations engineer is $65. This includes a 25% salary markup for benefits overhead.

Risks. Active Assist configuration costs incurred by other organizations may vary based on the following factor:

- The size and complexity of the organization's GCP environment will determine the engineering effort required to configure Active Assist. Rules will need to be configured for each application based on factors such as application criticality and uptime requirements.

Results. To account for this risk, Forrester adjusted this cost upward by 15%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $154,060.

Active Assist Configuration Costs						
Ref.	**Metric**	**Source**	**Initial**	**Year 1**	**Year 2**	**Year 3**
E1	Number of hours required to configure Active Assist recommendations	Interviews	120	684	684	684
E2	Number of cloud operations engineers involved in Active Assist configuration	Interviews	3	1	1	1
E3	Fully-burdened hourly salary per cloud operations engineer	Assumption	$65	$65	$65	$65
Et	Active Assist configuration costs	E1*E2*E3	$23,400	$44,460	$44,460	$44,460
	Risk adjustment	↑15%				
Etr	Active Assist configuration costs (risk-adjusted)		$26,910	$51,129	$51,129	$51,129
	Three-year total: $180,297			**Three-year present value: $154,060**		

TRAINING AND ONBOARDING COSTS

Evidence and data. All interviewed organizations noted that Active Assist required only minimal training and onboarding as the tool was intuitive to use and already integrated into the GCP environment. A single cloud operations team typically leveraged the tool first before championing it to different engineering teams within the organization. On average, initial training and discovery entailed two hours per FTE while ongoing training on newly released or adopted features, updates, or modules required one hour per FTE.

Modeling and assumptions. Forrester makes the following assumptions to calculate training and onboarding costs of Active Assist:

- The composite organization trains its entire team of 400 software developers on Active Assist.
- The average hourly rate per software development FTE is $88. This includes a 25% salary markup for benefits overhead.

Risks. Training and onboarding costs incurred by other organizations may vary based on the following factor:

- The size of the software development team will determine the magnitude of training and onboarding costs.

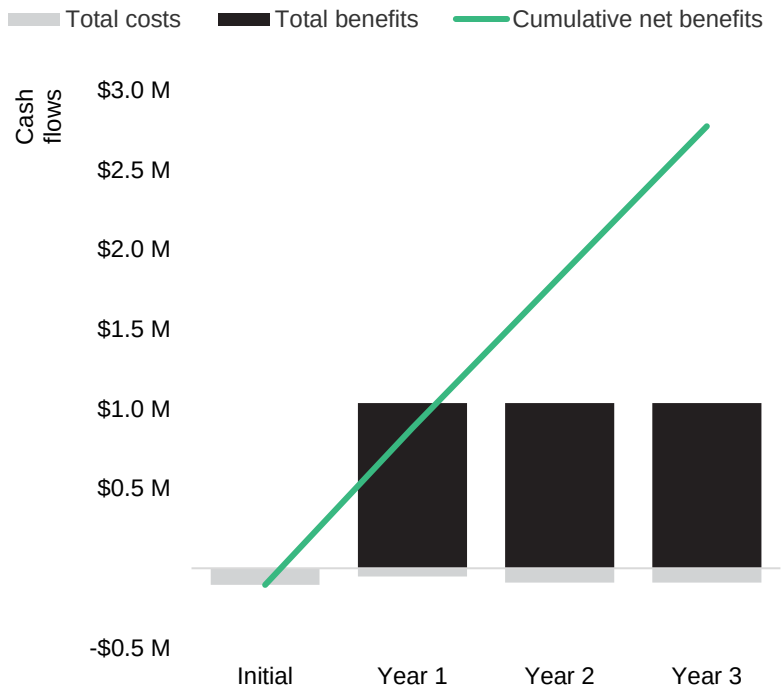
Results. To account for this risk, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV of $138,531.

Training And Onboarding Costs						
Ref.	**Metric**	**Source**	**Initial**	**Year 1**	**Year 2**	**Year 3**
F1	Number of software developers	Assumption	400		400	400
F2	Fully-burdened hourly salary per software development FTE	Assumption	$88		$88	$88
F3	Initial training and onboarding time, in hours	Interviews	2		1	1
Ft	Training and onboarding costs	F1*F2*F3	$70,400	$0	$35,200	$35,200
	Risk adjustment	↑10%				
Ftr	Training and onboarding costs (risk-adjusted)		$77,440	$0	$38,720	$38,720
	Three-year total: $154,880			**Three-year present value: $138,531**		

Financial Summary

CONSOLIDATED THREE-YEAR RISK-ADJUSTED METRICS

Cash Flow Chart (Risk-Adjusted)



The financial results calculated in the Benefits and Costs sections can be used to determine the ROI and NPV for the composite organization's investment. Forrester assumes a yearly discount rate of 10% for this analysis.

These risk-adjusted ROI and NPV values are determined by applying risk-adjustment factors to the unadjusted results in each Benefit and Cost section.

Cash Flow Analysis (Risk-Adjusted Estimates)

	Initial	Year 1	Year 2	Year 3	Total	Present Value
Total costs	($104,350)	($51,129)	($89,849)	($89,849)	($335,177)	($292,591)
Total benefits	$0	$1,036,393	$1,036,393	$1,036,393	$3,109,180	$2,577,357
Net benefits	($104,350)	$985,264	$946,544	$946,544	$2,774,003	$2,284,766
ROI						781%

Appendix A: Total Economic Impact

Total Economic Impact is a methodology developed by Forrester Research that enhances a company's technology decision-making processes and assists vendors in communicating the value proposition of their products and services to clients. The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

TOTAL ECONOMIC IMPACT APPROACH

Benefits represent the value delivered to the business by the product. The TEI methodology places equal weight on the measure of benefits and the measure of costs, allowing for a full examination of the effect of the technology on the entire organization.

Costs consider all expenses necessary to deliver the proposed value, or benefits, of the product. The cost category within TEI captures incremental costs over the existing environment for ongoing costs associated with the solution.

Flexibility represents the strategic value that can be obtained for some future additional investment building on top of the initial investment already made. Having the ability to capture that benefit has a PV that can be estimated.

Risks measure the uncertainty of benefit and cost estimates given: 1) the likelihood that estimates will meet original projections and 2) the likelihood that estimates will be tracked over time. TEI risk factors are based on "triangular distribution."

The initial investment column contains costs incurred at "time 0" or at the beginning of Year 1 that are not discounted. All other cash flows are discounted using the discount rate at the end of the year. PV calculations are calculated for each total cost and benefit estimate. NPV calculations in the summary tables are the sum of the initial investment and the discounted cash flows in each year. Sums and present value calculations of the Total Benefits, Total Costs, and Cash Flow tables may not exactly add up, as some rounding may occur.

PRESENT VALUE (PV)

The present or current value of (discounted) cost and benefit estimates given at an interest rate (the discount rate). The PV of costs and benefits feed into the total NPV of cash flows.

NET PRESENT VALUE (NPV)

The present or current value of (discounted) future net cash flows given an interest rate (the discount rate). A positive project NPV normally indicates that the investment should be made, unless other projects have higher NPVs.

RETURN ON INVESTMENT (ROI)

A project's expected return in percentage terms. ROI is calculated by dividing net benefits (benefits less costs) by costs.

DISCOUNT RATE

The interest rate used in cash flow analysis to take into account the time value of money. Organizations typically use discount rates between 8% and 16%.

PAYBACK PERIOD

The breakeven point for an investment. This is the point in time at which net benefits (benefits minus costs) equal initial investment or cost.

Appendix C: Endnotes

[1] Source: “The Forrester Guide To Native Cloud Management,” Forrester Research, Inc., December 8, 2021.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