
# Maximizing Operator Value from VoIP Services

*How cloud-based service delivery platforms are changing the game*

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## INTRODUCTION

The emergence of commercial ready 4G wireless systems has brought into focus the need for profitability supporting advanced applications. While 3G system enables data over a primarily voice oriented network, the all IP structure of 4G systems is designed for data first. By adding VoIP capabilities into the network, a 4G operator can offer a combined data/voice service. More important than the added stickiness of offering additional services, the additional revenue and margin contributions from VoIP services could have a significant impact on the overall ROI of a 4G operator business case.

Operators deploying VoIP over 4G networks are faced with a critical decision as to whether they should build and manage an in-house VoIP platform or partner with a cloud-based, hosted VoIP solution provider. Although the average VoIP revenue contribution per end-user is largely the same for either an in-house approach or a hosted solution, that is where the similarities end. The differences in cost structure, profitability, time to market, back-office flexibility and risk profiles of the two implementation options are significant.

Building in-house platforms are expensive, with significant amounts of CapEx required to install the needed hardware and software in the core network to support VoIP. Even in small networks this often exceeds $1-1.5M. In addition, there is significant cost associated with ongoing operations and support of an in-house VoIP network, including staff, carrier connection charges, and network operating expenses. The heavy CapEx and fixed OpEx requirements increase the risk profile for deploying VoIP services. By contrast, hosted VoIP delivery platforms have the advantages of eliminating CapEx and reducing VoIP-related OpEx to a predictable fixed monthly cost per-subscriber.

*VoIP over 4G services offer operators the best opportunity to enhance their business case.*

In addition, working with a hosted VoIP service provider, like Alianza, an operator can support a more agile and innovative service for its customers and improve its ROI for its VoIP service offering. It is also important to note that hosted VoIP services can be launched in as fast as a month or two, whereas in-house platforms usually require a minimum of 9 months or more to test and commercially deploy. An added benefit is the scalability of the solution and the assurance that the latest technology upgrades can be implemented without continuous investment. The end result is an improvement of 5-10% in the overall IRR of the business case for an operator deploying a hosted VoIP service as compared to an in-house solution.

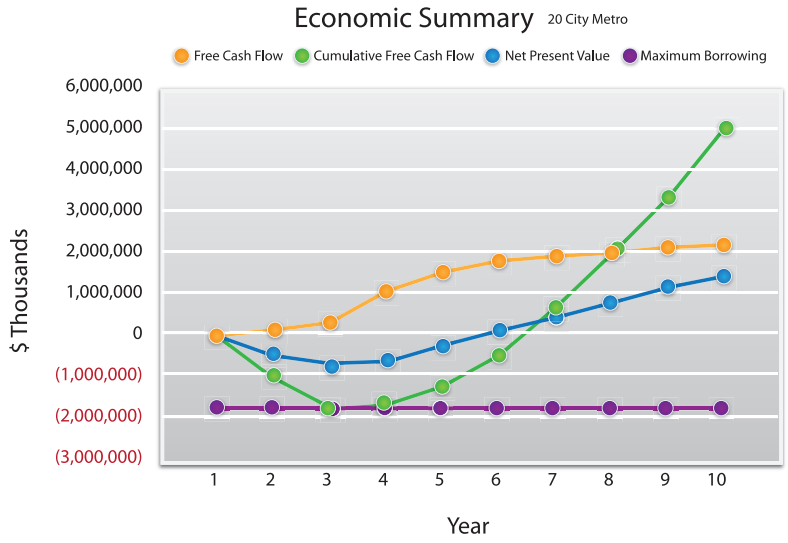
## THE BUSINESS CASE FOR VOIP SERVICE

While 4G services promise to be the next frontier for mobile service operators, they are faced with the challenge to make these services profitable while investing to meet the demand from the explosive growth of these services. With the advent of the smart phone and tablet platforms, operators are seeing exponential growth in the volume of traffic being consumed over mobile data networks. Additionally, the monthly service prices that operators can charge for data services is going down year over year, indicative that these are rapidly becoming commodity services. Given the cost structure associated with supporting this extraordinary traffic growth, it is increasingly difficult for operators to maintain profitability on data only services. Operators must look to other value-added services to increase ARPUs and improve profitability.

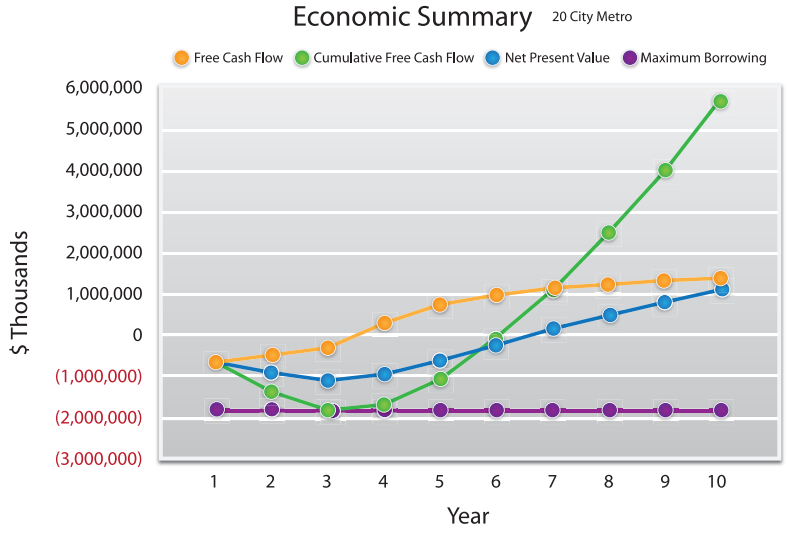
VoIP over 4G services offer operators the best opportunity to enhance their business case. Offering both voice and data services will have a positive marketing impact. These bundled services can lead to increased market penetration and reduced churn. The adder charged for VoIP increases ARPU for the operators by 25-50%, helping to offset the reduction in ARPU for data services and greatly increasing ROI for the overall mobile network operation.

Wireless 20/20, a leading broadband wireless advisory group, has modeled a deployment for a 4G system covering the top 20 metropolitan areas in the US. As is shown in the 10-year business case output graph below, such a system would require an investment of approximately $2.0B to build out the network. With data only services, the payback period is approximately 7 years. Adding VoIP capability to the network requires an additional $100M of capital over the 10 years. This investment will generate VoIP revenues and positive cash flow which in turn will offset the total investment needed by about $100M. At the same time, the payback period would be reduced from 7 years to 6 years. Consequently, the additional VoIP revenue and profit, if you assume that a reasonable percentage of data users also take voice service, contribute to a successful business case for a 4G operator.

***Graph 1***
*Business case results for a US 20- city Metro deployment without VoIP*




***Graph 2***
*Business case results for a US 20- city Metro deployment with VoIP*

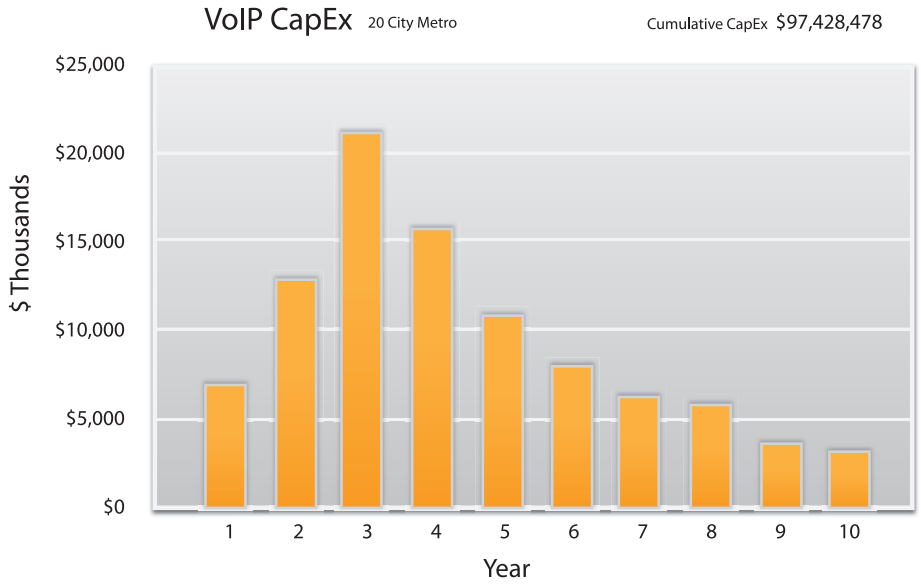



## CHALLENGES OF DEPLOYING AN IN-HOUSE VOIP SOLUTION

Historically, VoIP implementations have required operators to build VoIP functionality and supporting services directly in their core networks. But the cost for building, supporting, scaling and upgrading that network can be a real drag on the profitability an operator hopes to gain for adding VoIP service to its portfolio. CapEx for VoIP can be 7-15% of total CapEx depending on the size of the network. Beyond the CapEx, an operator needs to build an expert organization to support the network and VoIP customers, adding significant OpEx. The cost for data center and network maintenance adds to the burden. In addition, the operator must support voice network origination and termination charges from the local PTT, and pay other charges, such as number porting costs. All of these costs must be weighed against the potential revenue that the operator can gain by offering VoIP services.

There are a number of elements which must be added to the network by an operator to support VoIP. In the core network, an operator must build and support media gateways, soft switches, SIP proxy servers, billing/rating systems, device provisioning systems, emergency services, CALEA compliance and additions to a given policy engine. Many of these elements add significant up-front cost and must be scaled with the growth of subscriber base; meaning that an operator must continue to add CapEx as the VoIP business grows. In the graph below, which builds on the previous 20 city US metro are deployment example, we see a typical profile for an operator's CapEx over 10 years to support VoIP. While the investment peaks in the third year, a total investment of $97M is required over the 10 year period. This is part of the total $2 billion dollars of CapEx for the 20 city metropolitan area deployment.

***Graph 3***
*Annual CapEx for deploying VoIP for a US 20-city Metro 4G Network*




*To properly support an in-house VoIP network, an operator should be hiring staff at the rate of one for every 4,000 subscribers.*

In addition to the CapEx, there is significant OpEx required. To properly support an in-house VoIP network, an operator should be hiring staff at the rate of one for every 4,000 subscribers (starting with a minimum of 5-8 staff). As larger numbers of subscribers are reached, the ratio goes up and cost per subscriber goes down. Additionally, there are costs to support the data center requirements as additional subscribers are added. Operators must also pay a new number activation or number porting fees for each new subscriber added to the network. These fees can range from $5-$10 per number, with an additional $10-$12 per number for engaging with vendors that help automate the complex porting processes. There are also significant costs incurred to support and maintain operator-owned networks. The largest cost is typically the interconnection charges to be paid to the PTT. Overall, the operating costs are in the range of 30-40% of the total VoIP revenues. This adds both a financial burden and an organizational support burden, putting a drag on the profitability of VoIP services.

## CLOUD-BASED VOIP SOLUTIONS ARE EMERGING AS A VIABLE ALTERNATIVE

Given the drawbacks associated with building and supporting their own VoIP infrastructure, operators are increasingly considering cloud-based VoIP solutions. These next-gen, managed service providers host the VoIP platform infrastructure and are able to provide multiple operators access to the same shared network core. From the operator's perspective, outsourcing the VoIP network management offers multiple financial and strategic benefits. First and foremost, this service delivery model eliminates both the need to invest large sums in VoIP CapEx and the need to hire staff and incur the cost for supporting VoIP. Instead, the operator pays the Hosted VoIP provider a fixed monthly cost per subscriber, creating a fully scalable and predictable cost structure for the operator.

An example of such a provider is Alianza. Alianza has emerged as the leading provider of cloud-based VoIP solutions and is leading the charge to change the way 4G broadband operators deploy and manage VoIP services. Over 20 of North America's leading broadband providers, such as AT&T, Open Range Communications and DigitalBridge Communications, currently rely on Alianza to power their VoIP services.

*Another significant, although less tangible benefit realized by operators that have deployed hosted solutions is that they are able to increase their strategic focus on their core competencies.*

In addition to the financial advantages, operators who embrace the cloud-based service delivery model realize several additional key benefits. There is a risk element for operators that deploy their own infrastructure. If VoIP service launch is delayed or subscriber growth targets are not met, the operator risks financial losses by not being able to support the up-front investment or the ongoing fixed operational costs required to support the VoIP infrastructure. Also, if subscriber growth is much higher than expected, the operator could be stuck with inadequate infrastructure to support its customers. However, by working with a host VoIP subscriber, the solution is completely scalable with predictable costs and profitability for the VoIP business.

Over the next 10 years, it is expected that there will be great strides in terms of technology solutions for VoIP. Whereas fixed VoIP providers manage and support dozens of product code-lines, hosted platform providers are able to support multiple operators on a single code line and from a unified hardware stack. The net result is more efficient support, development and product innovation. Hosted providers are continually upgrading software and hardware in order to consistently maintain the "latest and greatest" solutions. Alianza, as an example, provides quarterly updates to its service features. Moreover, a hosted provider can provide a broad suite of applications, services, and features that could be expensive and cumbersome for an operator to support.

There is also the advantage of the speed of deployment. Typically, it might take an operator 9-12 months to install and deploy its own VoIP solution. By contrast, a hosted VoIP service provider can have an operator in position to offer service in 1-2 months. This can mean an additional half year or more of VoIP revenue for the operator by allowing it to launch service much faster and gain market share sooner.

Another significant, although less tangible benefit realized by operators that have deployed hosted solutions is that they are able to increase their strategic focus on their core competencies. Operators are able to focus on building and monetizing 4G data networks, rather than managing, scaling, and supporting in-house VoIP platforms.

## A BUSINESS CASE COMPARISON BETWEEN HOSTED VOIP AND AN IN-HOUSE SOLUTION

Wireless 20/20 expanded its analysis to compare a hosted VoIP solution to an in-house deployment scenario. The assumptions about the services supported, number of VoIP subscribers, minutes of use, and VoIP revenues were the same for both the hosted and in-house solutions. A cross- section of markets—ranging from very large to very small—was examined. In all cases, particularly in the early years of the deployment, there was a cost advantage for the hosted solution, resulting in improved IRR for the operator.

***Graph 4***
*VoIP Business Case results comparing Hosted VoIP vs. In-house VoIP*

| IRR Analysis | Top 50 Markets | 20 City Metro | Washington DC | Large Rural | Medium Rural | Small Rural |
|---|---|---|---|---|---|---|
| # of VoIP Subs after 10 years | 7,071,508 | 2,828,603 | 253,544 | 197,179 | 59,154 | 17,256 |
| 10-year VoIP CapEx | $238M | $95M | $9M | $8M | $3M | $3M |
| IRR without VoIP | 37.7% | 37.6% | 54.8% | Negative | Negative | 32.3% |
| IRR with In-house VoIP | 45.7% | 45.7% | 62.3% | 28.1% | 30.5% | 33.0% |
| IRR with Hosted VoIP | 47.0% | 47.0% | 66.3% | 29.1% | 32.9% | 40.6% |

The net results of the total business case of the 4G operator were examined, including the IRR difference between the hosted and in-house solutions. The above table summarizes the results of the business case analysis.

In all market examples, hosted VoIP results in the highest IRR over the 10 year business case. The improvement is emphasized as the market grows smaller. In all cases, VoIP improves the overall business case. In the largest examples looking at the top 50 US markets and the top 20 US metropolitan areas, a large enough population of VoIP users allows an operator to better support the cost of the CapEx infrastructure. Yet the on-going cost of supporting the organization and the VoIP network equipment results in an IRR advantage of more than 1% for a hosted solution. As the analysis shifts to smaller markets, the IRR advantage to the whole business case grows to more than 7%. The capability to efficiently use the VoIP infrastructure is limited by the number of available VoIP subscribers. Based on the results of the analysis, it would appear to be advantageous for almost all operators to examine the use of a hosted VoIP solution if they desire to offer voice services.

## CONCLUSION

In most markets, there is an expectation that a 4G operator will offer bundled service to compete with incumbent providers. In addition, operators need VoIP and other adjunct revenue sources to drive continued revenue growth. But the operator faces critical decisions when implementing voice services. The straight-forward assumption might mean investing in the additional capital to build VoIP capability into the operator's core network, a significant cost that could add 5-15% to the overall CapEx for the network. There is also significant cost to supporting the VoIP users and the networks which an operator incurs by having its own in-house VoIP network. The operator also exposes itself to other financial risks, such as on-going need to upgrade its network, along with exposure to financial losses if VoIP subscriber growth does not match expectations. Many of these risks and financial liabilities are eliminated by working instead with a hosted VoIP service provider. By eliminating the CapEx of installing VoIP and reducing in-house OpEx, an operator can quickly deploy a VoIP solution. The analysis here has demonstrated the viability of a hosted VoIP solution. The positive financial impact of a VoIP can be maximized by implementing a hosted solution. The money saved on the cost side of the VoIP solution can be redeployed for sales, marketing and other areas that can help the operator's business grow. Working with a partner such as Alianza can be a key driver for the future growth of a 4G operator.

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### *About Wireless 20/20*

Wireless 20/20 is an independent market research and consulting company focused solely on the emerging broadband wireless market. Our principals have been engaged in the wireless industry since its inception and have gained a thorough understanding of the technical, business and product issues surrounding the development of broadband wireless devices, equipment, networks, and services.

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