



Telco Software M&A Market

Sector Trends and Valuation Analysis (2015—2017)

February 2018

BOIS CAPITAL

Contents

DISCLAIMER	03
-------------------	-----------

ABOUT THE TEAM	04
-----------------------	-----------

RECENT TRANSACTIONS	04
----------------------------	-----------

INTRODUCTION	05
---------------------	-----------

INDUSTRY TRENDS	06
------------------------	-----------

M&A TRENDS	07
-----------------------	-----------

CASE STUDY	08
-------------------	-----------

PUBLIC PEERS	09
---------------------	-----------

SIGNIFICANT M&A TRANSACTIONS	10
---	-----------



Disclaimer

THIS DOCUMENT IS FOR INFORMATIONAL PURPOSES. THE INFORMATION CONTAINED IN THIS DOCUMENT DOES NOT PURPORT TO BE COMPLETE. ALL OF THE INFORMATION CONTAINED HEREIN IS SUBJECT TO CHANGE WITHOUT NOTICE. EACH RECIPIENT OF THIS DOCUMENT SHOULD CONDUCT ITS OWN INDEPENDENT INVESTIGATION AND ASSESSMENT OF THE CONTENTS OF THIS DOCUMENT AND MAKE SUCH ADDITIONAL ENQUIRIES AS IT DEEMS NECESSARY OR APPROPRIATE.

BOIS CAPITAL HAS BASED THIS DOCUMENT ON INFORMATION OBTAINED FROM SOURCES IT BELIEVES TO BE RELIABLE BUT WHICH HAVE NOT BEEN INDEPENDENTLY VERIFIED. ALL CHARTS AND GRAPHS ARE FROM PUBLICLY AVAILABLE SOURCES OR PROPRIETARY DATA. EXCEPT IN THE CASE OF FRAUDULENT MISREPRESENTATION, BOIS CAPITAL MAKES NO REPRESENTATION OR WARRANTY (EXPRESS OR IMPLIED) OF ANY NATURE OR ACCEPT ANY RESPONSIBILITY OR LIABILITY OF ANY KIND FOR THE ACCURACY OR SUFFICIENCY OF ANY INFORMATION, STATEMENT, ASSUMPTION OR PROJECTION IN THIS DOCUMENT, OR FOR ANY LOSS OR DAMAGE (WHETHER DIRECT, INDIRECT, CONSEQUENTIAL OR OTHER) ARISING OUT OF RELIANCE UPON THIS PRESENTATION. STATEMENTS MADE IN THIS PRESENTATION RELATING TO THE FUND ARE INTENDED AS A SUMMARY AND NOT A COMPLETE DESCRIPTION AND MAY BE SUBJECT TO CHANGE. BOIS CAPITAL IS UNDER NO OBLIGATION TO KEEP CURRENT THE INFORMATION CONTAINED IN THIS DOCUMENT.

THIS DOCUMENT IS NOT INTENDED FOR DISTRIBUTION TO, OR USE BY, ANY PERSON OR ENTITY IN ANY JURISDICTION OR COUNTRY WHERE SUCH DISTRIBUTION OR USE WOULD BE CONTRARY TO LAW OR REGULATION.

THE INFORMATION HEREIN DOES NOT CONSTITUTE AN OFFER TO SELL OR SOLICITATION OF AN OFFER TO MAKE INVESTMENTS IN DESIGNATED INVESTMENTS IN ANY JURISDICTION. THE INFORMATION HEREIN DOES NOT TAKE INTO ACCOUNT THE INVESTMENT OBJECTIVES, FINANCIAL SITUATION OR NEEDS OF ANY PERSON AND SHOULD NOT FORM THE BASIS OF ANY INVESTMENT DECISION.

THE CONTENT OF THIS DOCUMENT IS CONFIDENTIAL AND IS SOLELY FOR PRELIMINARY DISCUSSIONS. NEITHER THE WHOLE NOR ANY PART OF THE INFORMATION IN THIS DOCUMENT MAY BE DISCLOSED TO, OR USED OR RELIED UPON BY ANY OTHER PERSON, OR USED FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF BOIS CAPITAL. THE MATERIAL CONTAINED HEREIN MAY INCLUDE UNPUBLISHED PRICE SENSITIVE INFORMATION, THE MISUSE OF WHICH MAY RESULT IN CRIMINAL AND/OR CIVIL PROCEEDINGS.

THE RETURNS AND VALUATIONS IN THIS DOCUMENT ARE PRELIMINARY AND TENTATIVE ONLY. NOTHING IN THIS DOCUMENT IS, OR SHOULD BE RELIED ON AS, A PROMISE OR REPRESENTATION AS TO FUTURE DEVELOPMENTS.

About the team



Peter Benedict, Managing Partner

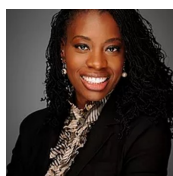
Peter Benedict co-founded Bois Capital in 2013. Most recently Peter served as Vice President and head of Alcatel-Lucent's Customer Experience Analytics business. Previously he was Director, Global Communications and Marketing at Bell Labs. Prior to Alcatel-Lucent, Peter held a series of strategy, product marketing, and communications roles at a number of networking, telecom, and enterprise communications start-ups as well as Ardent Communications, a tier one broadband service provider in the United States. Peter also headed up marketing for RADVISION, an Israeli videoconferencing infrastructure vendor.



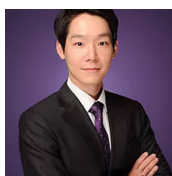
Tarang Shah, Managing Partner

Tarang Shah co-founded Bois Capital in 2013. His telecom expertise includes education as BSEE; eight years as program/product manager for 3G productline at Qualcomm and Ericsson to Venture Capitalist at SoftBank Capital where he helped with investments in mobile/telco, digital media, and enterprise software startups. Prior to co-founding Bois Capital, Tarang was Senior Vice President at Bank of America Merrill Lynch and worked with leading technology startups in mobile payment and commerce to SaaS and Telco software. Tarang has reviewed 1200+ startups in his career and has assisted two dozen plus tech companies in venture and investment banking deals. He is an author of very popular book on venture capital (English, Chinese), Venture Capitalists At Work.

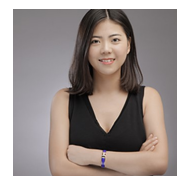
The Managing Partners are supported by Associates Nnenna Elumogo, Brian Yoo and Josie Yin.



Nnenna Elumogo, Associate















Brian Yoo, Associate



Josie Yin, Associate

Recent Telecoms Software Related Transactions

 has been acquired by  Bois Capital acted as exclusive M&A adviser to Crowdx BOIS CAPITAL	Sale of Crowdx, an Israel-based RF Optimization, QoE monitoring, and mobile and user analytics solution, to Cellwize, a leading SON vendor.	 has divested its Mobile Analytics Division in an MBO Transaction to  Bois Capital acted as exclusive M&A adviser to comScore BOIS CAPITAL	Divestiture of mobile analytics division of comScore, Inc. (NASDAQ:SCOR) to Innovo in an MBO transaction. The Division focuses on providing telco analytics solutions to the Marketing and Customer Care departments.
 has been acquired by  Bois Capital acted as exclusive M&A adviser to Swiss Mobility Solutions BOIS CAPITAL	Sale of Swiss Mobility Solutions, a Swiss firm focused on mobile analytics, to Gemalto, a public billion dollar Dutch company (EPA:GTO), which technology delivers personal mobile services, payment security, and border & visa management.	 has been acquired by  Bois Capital acted as exclusive M&A adviser to Kanvas Labs BOIS CAPITAL	Sale of Kanvas Labs, headquartered in New York City, a video and visual messaging app maker to AOL (NYSE:AOL), to have a competitive edge over the Snapchat. AOL was recently acquired by Verizon (NYSE:VZ) for \$4.4 billion.
 has been acquired by  Bois Capital acted as exclusive M&A adviser to Cloudbearing BOIS CAPITAL	Sale of Cloudbearing, a US firm focused on Microsoft Office 365 migrations, to Comparex AG, a private multi- billion dollar German company which specializes in license management, software procurement and technical product consulting.	 has been acquired by  Bois Capital acted as exclusive M&A adviser to PayDivvy BOIS CAPITAL	Sale of PayDivvy, a social payment platform, that lets people split bills for utilities and other services, to a US public company Higher One (NYSE:ONE). focused on creating efficiencies for higher education institutions and providing high-value services to students.

Telecommunications Trends and M&A Drivers

Recent research shows that telco ARPU have been falling in virtually every region in the last decade (2006-16), with the rate of decline increasing in some cases in the five-year period from 2011 to 2016. Increased competition from emerging players such as OTT (Over-The-Top) players has eaten into core communication services such as messaging and voice.

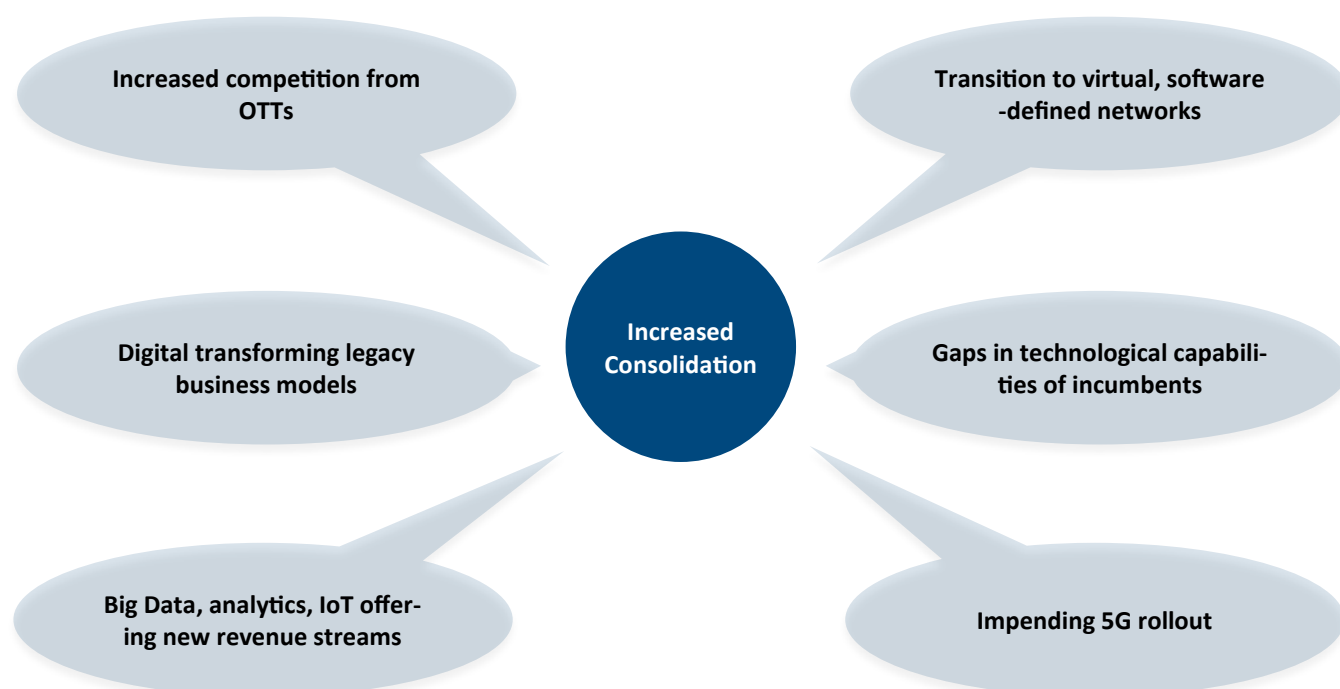
IP-based messaging apps such as WhatsApp, Viber and iMessage already account for 80% of messaging volume, while Skype accounts for more than a third of all international voice traffic minutes. This, along with the advent of boom in mobile devices and applications has changed the fundamental nature of the telcos' business in terms of consumer behavior, operations management, customer acquisition and retention, and new revenue streams.

This sea change in how users interact with information, entertainment, and each other, combined with new innovations in Big Data and user/network intelligence, has led to strong consolidation and increased M&A activity within the telecom software industry.

Large general telecoms infrastructure vendors as well as smaller hardware and software players have been active in plugging gaps or complimenting their solutions through M&A, expanding into adjacent industries such as software, IT services, digital media, IoT and analytics. These strategic moves are underpinned by a need to offer a seamless digital experience and open up new revenue streams that transcend legacy business lines. Large software and IT services incumbents are similarly acquiring niche players to strengthen their offerings for the cloud and telecoms space as well as leverage these innovations into new offers to be sold directly to large enterprise customers.

Further consolidation is expected in the near term as the telecommunications industry continue the transition towards 5G, the virtualization of networks (SDN/NFV), cloud communications, IoT and Big Data, powering the next round of growth. The impending 5G rollout is especially critical in this regard, given the scale of investment it entails. As per Bloomberg, 5G will require an investment of \$200 billion a year in R&D and capital expenditure encompassing all players, such as service providers, device manufacturers, network hardware and software players, in the telecom ecosystem.

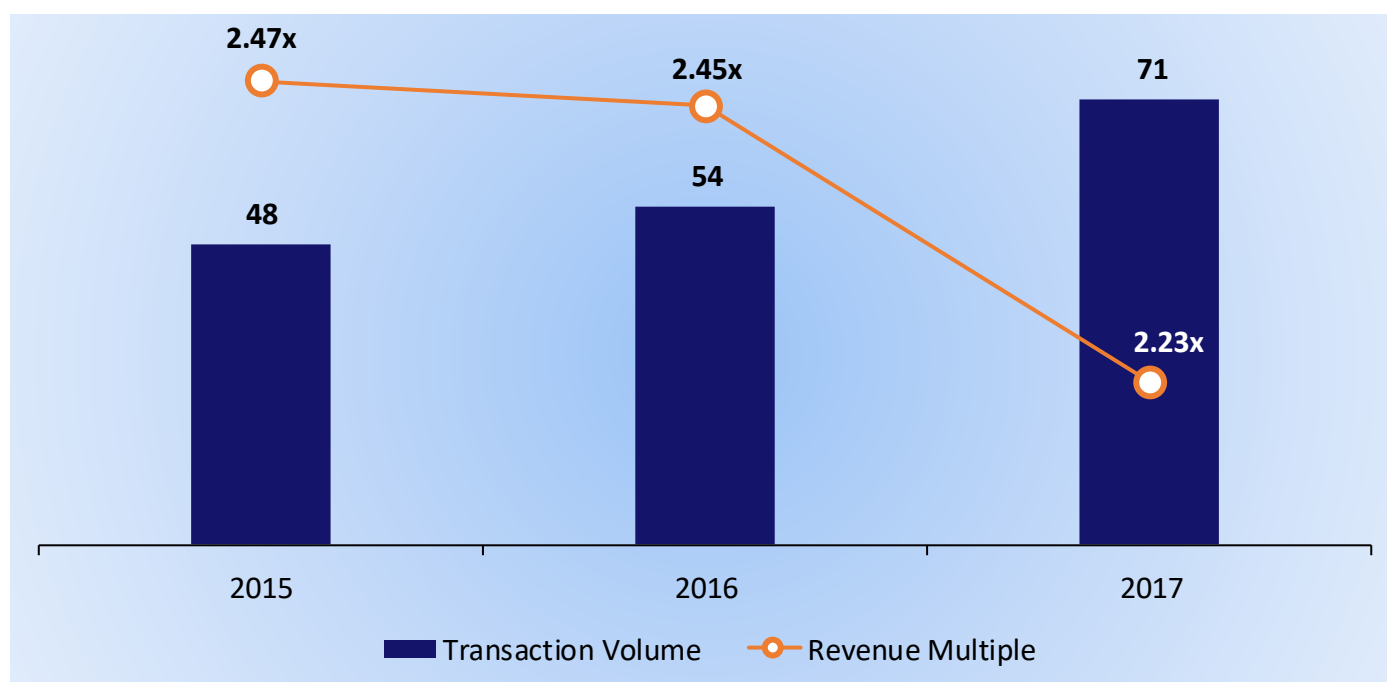
Given the size of the opportunity, it is natural to expect accelerated consolidation as players gear up to face the challenge and opportunity.



Subsector Trends

IoT	Network operators are continuing to commercialize low-power networking technologies such as LoRaWAN, NB-IoT and SIGFOX creating acquisition opportunities on both the upstream and downstream side. For instance, French start-up Actility acquired geolocation system specialist Abeeway in March 2017 strengthening its IoT location services. This was preceded by a \$75 million funding round in which Cisco picked up a stake in Actility.
Network Function Virtualization (NFV) and Software Defined WAN (SD-WAN)	As telco operators look to rationalise network access costs, moving away from legacy physical networks, hardware incumbents are actively scouring for acquisition opportunities to strengthen their capabilities. Case in point being VMware's acquisition of VeloCloud, a leading player in the SD-WAN market, in November 2017 which puts the company in direct competition with Cisco, which acquired SD-WAN major Viptela for \$610 million in May 2017.
5G Rollout	5G rollout is likely to be the next biggest disruption on the horizon in the telecommunications industry. With most communication service providers targeting 2020 for initial rollout, a number of carriers such as Verizon are moving away from trials to deployments. 5G promises 10x-50x higher data transfer speeds compared to current levels and is likely to trigger acquisitions in mobile telephony and 5G applications. A few deals in the last two years – Wireless Telecom Group's acquisition of CommAgility, Xura's acquisition of Ranzure Networks and MaxLinear's acquisition of the wireless infrastructure backhaul business of Broadcom Corporation are cases in point.
Service Assurance and Network Performance Monitoring (NPM)	Evolving market dynamics such as network virtualisation have prompted network operators to increase focus on network Quality of Service (QoS). This has led to increased consolidation within the NPM field, earlier characterised as fragmented with small vendors catering to niche areas. The need for integration and end-to-end NPM capabilities has set off a round of inorganic growth among larger vendors such as Viavi, Spirent and Infovista with network equipment manufacturers such as Ciena, Ericsson and Juniper also looking to enter the fray.
Over-the-top (OTT) players	OTT players such as WhatsApp, Viber and Skype have cannibalised telcos' existing core communications services such as messaging and voice leading to severe pressure on revenues. With the growing popularity of on-demand content, audio and video streaming appears to be the next big growth areas for service providers and technology companies. Transactions in the last three years point towards increasing consolidation in the OTT space as companies gear up to gain capabilities. Akamai's acquisition of Octoshape, which helps optimize the quality of video streams for over-the-top (OTT) content and to enable Internet Protocol television (IPTV) solutions in 2015, Cisco's acquisition of 1Mainstream, that offers a cloud video platform designed to quickly launch live and on-demand over-the-top (OTT) video services, AT&T's acquisition of Canada-based QuickPlay Media, a provider of internet-video streaming services for \$184 million in 2016 are some examples.
Big Data Companies	Big Data as a key enabler for targeted marketing, network optimization and offering real-time insights has always been acknowledged by telco operators and hardware manufacturers. The rapid advancement in IoT, digitalisation of businesses and the impending shift to 5G is likely to catalyse a massive increase in data generation and has underscored the urgent need to develop capabilities to monetise data resulting in consolidation. Transaction activity in the last two years validate the move in this direction. In 2017, Telefonica acquired UK-based Statiq and Nokia acquired Comptel, while cVidya was acquired by Amdocs in 2016.
Telco Analytics	Telco analytics, especially in the area of BSS pertaining to revenue assurance and fraud detection is gaining considerable traction among CSPs, leading to consolidation. Telecoms fraud is a growing concern, particularly in the APAC region. While the full extent of fraud related losses is unclear, one particular type of fraud, International Revenue Share Fraud (IRSF) alone accounted for \$6.1 billion losses at a global level in 2017, according to the Communications Fraud Control Association (CFCA). Added to this, telcos are focusing on digital offerings such as content delivery, cloud-based services and Big Data to drive the next phase of growth and need their legacy BSS platforms to support this business transition effectively. Consequently, the OSS BSS software market is expected to grow at a CAGR of 15% to reach \$62.08 bn by 2021. Leading OSS BSS vendors such as Amdocs have explored the inorganic route to acquire innovative capabilities, as evident from its acquisition of cVidya Networks, Inc., a vendor of revenue assurance and fraud management solutions in 2016.
Telcos' traction with Ad-Tech	Telcos have been acquiring ad-tech companies in the last few years, in an effort to monetize their user data, to enable targeted advertising and share a bigger share of the online advertising and marketing business, bringing them in direct competition with the likes of Google and Facebook. Major acquisitions have highlighted this trend – Verizon's acquisition of Yahoo! and AOL has given it access to massive behavioural data, Telenor's \$360 million acquisition of cross-device advertising platform Tapad (2016), AT&T's acquisition of INVIDI Technologies (2016), Altice's \$308 million acquisition of Teads (2017) and Telefonica's acquisition of UK-based Statiq (2017) emphasize the growing importance attached to ad-tech by telecom service providers as their legacy business lines approach saturation.

M&A Trends



Market activity has perceptibly picked up over the last three years with transaction volumes increasing by almost 48% from 48 in 2015 to 71 in 2017. This is representative of a trend towards increasing consolidation by leading service providers, hardware manufacturers and technology players.

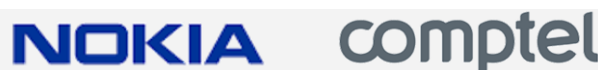
While valuations shift from subsector to subsector, the overall mean revenue multiple for Telco Software, based on publicly announced transactions, is 2.23x for 2017, slightly down from 2.47x in 2015. This indicates that while the M&A market is picking up momentum, there is price rationality setting in with acquirers closely monitoring their RoI. Strategic acquirers are willing to pay a premium for strategic fit and potential synergies but not beyond a point. Consequently, we do not see any major deals priced at double digit revenue multiples in the past few years, barring the odd small transaction.

This emerging trend of price rationalization is particularly apparent with Cisco, which has made 32 acquisitions in the last 3 years, at an average revenue multiple in the low to mid-single digits barring strategic buys like AppDynamics, for which they shelled out a 17.3x revenue multiple. The growing involvement of financial investors such as Vista Equity Partners(VEP) and Francisco Partners has also capped off the premium that telco software companies are likely to achieve in a transaction. Francisco Partners have done 22 deals at an average of 2.18x revenue multiple in the last three years.

We believe that the telco software industry will see increased momentum in M&A activity as communication service providers transition to a fully digital business, shifting from legacy hardware networks to cloud-based virtual ones along with tapping into opportunities in IoT and Big Data analytics for new business streams and optimized services. This will trigger a need to acquire capabilities in software development and advanced analytics which are likely to be bridged through the inorganic route.

Case Study

Nokia's acquisition of Comptel

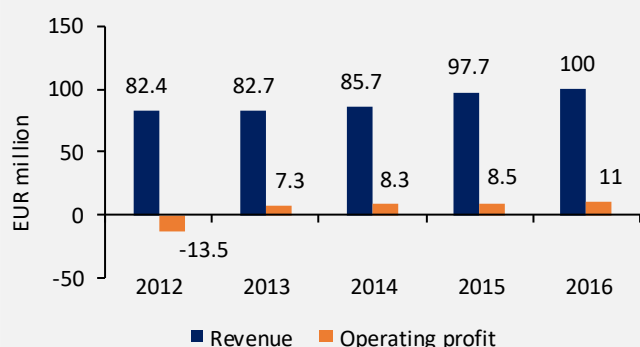


On 9th February 2017, it was announced that Nokia will acquire Finland-based telecommunication software firm Comptel, with the acquisition being completed on 29th June 2017. Nokia paid \$370 million in cash for Comptel and is one of the largest deals following its mammoth €15.6 billion all-share deal to acquire Franco-American group Alcatel-Lucent.

Financial Terms:

The all-cash deal valued Comptel at €3.04 per share, which represented a 29% premium compared to Comptel's last closing price.

Comptel Financial Performance



Comptel Share Price Performance



Valuation:

The purchase price represented a multiple of approximately 3.5x Comptel's annual revenue of €100 million for the year ending 31st December 2016. This represents a premium over the average 3.04x Revenue that publicly listed Telco Software companies are trading at and significantly higher than what Amdoc is trading at (2.23x Revenue Multiple). The EBIT multiple of 32x that Nokia paid for Comptel is almost twice that of Amdocs (16x EBIT), which even after factoring in a 4 percentage point improvement in EBIT margin levels in 2017 as per Comptel management, would still represent a significant pricing premium. This highlights the strategic significance of Comptel in Nokia's business plans.

Acquisition Rationale:

The acquisition is a major stepping stone for Nokia to build up a standalone software business at scale, which was highlighted at its Capital Markets Day briefing in November 2016. The acquisition offers significant synergies as Comptel's strong fulfillment/orchestration solution (FlowOne) to complement Nokia's service assurance portfolio. Comptel has built a best-in-class fulfillment solutions portfolio in recent years which supports service providers over both traditional networks and over a hybrid virtualised/legacy architecture. Nokia's expertise downstream in the network is complemented by Comptel's front end digital service lifecycle management skills in upstream OSS. With operators moving towards 'closed loop,' automated OSS they need to knit fulfillment and assurance together much more tightly, which is made possible by the combined Nokia-Comptel offering. The deal also enables Nokia to bolster its capabilities in the BSS segment, especially after it divested its BSS portfolio to Redknee in 2012. Nokia re-entered the business through its Alcatel-Lucent acquisition in 2015. Comptel's Data Refinery solution, a robust mediation system that is used by many CSPs as the data source, even for other downstream applications addresses a key gap in Nokia's BSS portfolio. The transaction also expands Nokia's customer base through Comptel's roster of around 300 CSPs, including operators across all tiers globally with a strong presence in the EMEA and APAC regions. Customers include UK's BT, T-Mobile in the U.S., France's Orange, Indonesia's Indosat and New Zealand's Chorus. It can also leverage Comptel's sales force which has considerable experience in selling the type of software that Nokia is specialising in. Lastly, both being Helsinki based companies and sharing a common Nordic culture will make integration a less challenging and complex task.

Analyst Commentary:

"This is a positive move. The fit is right, Comptel is high-growth (hence, perhaps the multiple -- Comptel didn't need to be bought), the two companies have been jointly going to market in the Nordics for some time, [and] there is shared culture, which always helps. And there has been a groundswell of operator opinion over the past year or so that Comptel has a good vision for and execution of the future operational stack for the hybrid/virtualized network at service orchestration level. Using Comptel to augment, and possibly even to supplant, pieces of a potentially disaggregated CloudBand will give Nokia a more complete solution to compete against Amdocs, Netcracker and HPE in managing services across hybrid networks." **Caroline Chappell, Principal Analyst, Software Controlled Networking, Analysys Mason.**

Telco Software M&A Market - Sector Trends and Valuation Analysis (2015—2017)

Trading Multiples of Public Peers

Company	Business Description	HQ	Price Close (\$ m)	Market Cap (\$ m)	Enterprise Value	Revenue (\$ m)	EBITDA (\$ m)	EV/ Revenue	EV/ EBITDA
8x8 Inc	Provides cloud-based, enterprise-class software solutions	USA	14.45	1,329	1,162	253	4	4.27x	-
Akamai Technologies Inc	Cloud services for delivering, optimizing and securing content and business applications over the Internet	USA	65.83	11,135	11,040	2,340	807	4.50x	14.21x
Amdocs Ltd	Provides software and services for communications, entertainment and media industry	USA	66.81	9,615	8,635	3,867	733	2.23x	11.79x
BroadSoft Inc	Provider of software and services that enable telecommunications service providers	USA	54.75	1,740	1,580	341	34	4.37x	64.07x
Cisco Systems Inc	Networking and other products related to the communications and IT industry	USA	39.53	195,421	159,756	48,005	15,072	3.34x	10.93x
Citrix Systems Inc	Provides server, application and desktop virtualization, networking, software as a service	USA	91.48	13,784	13,697	3,418	970	4.63x	16.70x
Enghouse Systems Ltd	Develops enterprise software solutions	Canada	50.50	1,355	1,260	253	70	4.81x	17.22x
Gemalto NV	Provides digital security services	Netherlands	59.54	5,401	6,398	3,287	616	1.76x	10.54x
International Business Machines Corp	Develops and manufactures information technology (IT) products and services	USA	162.49	150,432	184,650	79,919	17,323	2.36x	11.58x
Juniper Networks Inc	Provides products and services for high-performance networks	USA	28.51	10,843	9,693	4,990	1,100	1.87x	8.17x
Limelight Networks Inc	Provides a suite of integrated services marketed as the Limelight Orchestrate Platform	USA	4.70	516	458	168	-5	2.54x	242.94x
MobileIron Inc	Mobile information technology (IT) platform for enterprises	USA	3.98	382	300	164	-61	1.73x	-
Netscout Systems Inc	Provides operational intelligence and performance analytics	USA	31.25	2,723	2,716	1,162	227	2.46x	13.91x
Nuance Communications	A provider of voice recognition and natural language understanding solutions	USA	16.96	4,923	6,696	1,939	375	3.45x	17.85x
Redknee Solutions Inc	Offers real-time monetization and subscriber management software	Canada	0.87	226	175	138	-5	1.27x	-
Spirent Communications	Specializes in telecommunications testing systems	UK	1.42	869	759	458	73	1.66x	8.13x
Sterlite Technologies Ltd	Designing, building and managing smarter digital networks	India	5.38	2,158	2,258	400	80	4.83x	22.69x
Synchronoss Technologies Inc	Provides technologies and services for the mobile transformation of business	USA	9.37	435	558	477	34	1.17x	16.50x
Twilio Inc	Offers Cloud Communications Platform, which enables developers to build, scale and operate real-time communications within software applications	USA	25.76	2,396	2,113	277	-33	5.78x	-
Verint Systems Inc	Offers Actionable Intelligence solutions	USA	41.95	2,676	3,140	1,062	137	2.82x	22.06x
Viavi Solutions Inc	A provider of network test, monitoring and assurance solutions	USA	9.03	2,054	1,660	811	104	2.09x	15.45x
Mean								3.04x	30.87x

Telco Software M&A Market - Sector Trends and Valuation Analysis (2015—2017)

Significant M&A Transactions

Date	Acquirer	Target	Deal Value (\$ m)	Enterprise Value (\$ m)	Target Revenue (\$ m)	EV/ Target Revenue
1/1/2018	Blueface Ltd	falt Communications	500	-	-	-
12/1/2017	Forum Merger Corp	ConvergeOne Holdings Corp	-	-	-	-
11/30/2017	Altran Technologies SA	Aricent Inc	2,000	-	-	2.91x
11/30/2017	Enprise Group Ltd	Vadacom Ltd	-	-	-	-
11/27/2017	PayAsia Pte Ltd	hSenid Software International	-	-	-	-
11/22/2017	Adapt IT	CDR Live	5	-	-	-
11/22/2017	dotDigital Group PLC	Dynmark International Ltd	16	-	-	1.67x
11/15/2017	K1 Investment Management	Actiance	-	-	-	-
11/8/2017	West Corporation	ECaTS	-	-	-	-
11/7/2017	Cryptocurrency Corp	INFRAX Systems Inc	-	-	-	-
11/2/2017	Vmware	Velocloud	-	-	-	-
10/31/2017	Chiu Ngai Hung	Aurum Pacific (China) Group Ltd	1	-	-	3.65x
10/30/2017	Telus International	Xavient	-	-	-	-
10/26/2017	Elliott Management Corp.	Gigamon	1,600	-	-	-
10/26/2017	QuEST Global Services	IT SIX Global Services	-	-	-	-
10/23/2017	Cisco Systems Inc	BroadSoft Inc	1,611	-	-	4.45x
10/9/2017	Verint Systems Inc	Verba Technologies LLC	-	-	-	-
9/26/2017	Google Cloud Platform	Bitium	-	-	-	-
9/25/2017	Acorn Growth Cos	CIS Secure Computing Inc	-	-	-	-
9/21/2017	Investor Group	Adventoris Ltd	1	-	-	-
9/15/2017	Route1 Inc	Route1 Inc	-	-	-	0.67x
9/14/2017	Investor Group	Federated Wireless LLC	42	-	-	-
9/13/2017	Riverside Partners LLC	Calero Software LLC	-	-	-	-
9/13/2017	Advanced Info Service PCL	CS Loxinfo PCL	141	-	-	1.65x
9/7/2017	NewSpring Capital Inc	Atlantic Metro Communications	-	-	-	-
8/31/2017	Lam Research Corp	Coventor Inc	-	-	-	-
8/21/2017	Valid Soluciones Tecnologicas SAU	Cubic Telecom Ltd	-	-	-	-
8/17/2017	ConvergeOne	Strategic Products and Services	-	-	-	-
7/31/2017	Peter Holst	Glowpoint Inc	-	-	-	-
7/27/2017	Mitel Networks Corp	ShoreTel Inc	405	-	-	1.13x
7/19/2017	Corning Incorporated	SpiderCloud Wireless	-	-	-	-
7/12/2017	Zift Solutions Inc	Relayware Inc	-	-	-	-
7/5/2017	VINCI Energies	Acuntia	-	-	-	-
7/3/2017	HIG Capital	NCI, Inc.	283	-	-	-
6/26/2017	Natixis	Dalenys	-	-	-	-
6/20/2017	BDC Venture Capital	Xpertdoc Technologies Inc	-	-	-	-
6/15/2017	-	Slack Technologies Inc	-	-	-	-
6/13/2017	Trimble Inc	Innovative Software Engineering	-	-	-	-
6/9/2017	Gemini Investment Corp	Citech Co Ltd	3	-	-	1.74x
6/9/2017	Tatsuya Kato	Mido Holdings Ltd	-	-	-	-
6/7/2017	Netelligent	InterVision Systems	-	-	-	-
6/6/2017	LightRiver Technologies	Unique Computer Services	-	-	-	-
6/5/2017	OpenText Corporation	Covisint	103	75	-	-
5/26/2017	China Orient Qianhai Asset Mgmt.	Shanghai Meifeng Digital Technology	36	-	-	-
5/15/2017	Emtek Group	Doku	-	-	-	-
5/11/2017	CyberArk	Conjur, Inc.	42	-	-	-
5/11/2017	Technology Crossover Ventures	CCC Information Services Inc	-	-	-	-
5/11/2017	Tikehau Capital SCA	Claranet Ltd	103	-	-	-

Telco Software M&A Market - Sector Trends and Valuation Analysis (2015—2017)

Significant M&A Transactions

Date	Acquirer	Target	Deal Value (\$ m)	Enterprise Value (\$ m)	Target Revenue (\$ m)	EV/ Target Revenue
5/11/2017	Ackmann & Dickenson LLC	Jester Communications	-	-	-	-
5/10/2017	CLX Communications	Dialogue Communications	41	-	-	-
5/1/2017	Wave Systems Corp	Jive Software Inc	-	-	-	-
4/29/2017	Thales Group	Guavus	215	215	-	-
4/13/2017	Creditors	Avaya Inc	-	-	-	-
4/12/2017	EMIT	Softech	2	-	-	-
4/12/2017	Enghouse Systems Ltd	Tollgrade Communications	23	-	-	-
3/31/2017	Modern Office Methods	Full Service Networking	-	-	-	-
3/29/2017	Extreme Networks	Brocade Communications Systems	55	-	-	-
3/27/2017	-	Certified Security Solutions Inc	2	-	-	-
3/10/2017	Axonix	Statiq	4	-	-	-
3/6/2017	Development Capital Fund Mgmt.	Blueface Ltd	11	-	-	-
2/21/2017	STG Group	Preferred Systems Solutions	119	-	-	-
2/21/2017	Wireless Telecom Group	Commagility	19	-	10	-
2/10/2017	Diversis Capital	ServicePower	-	-	-	-
2/9/2017	Nuance Communications	mCarbon	36	-	-	-
2/9/2017	Nokia	Comptel Oyj	355	-	-	3.32x
2/7/2017	WISeKey	QuoVadis	-	-	-	-
2/4/2017	StackPath	Highwinds	-	-	-	-
2/2/2017	Data Blue LLC	LPS Integration Inc	-	-	-	-
2/1/2017	Cipio Partners GmbH	Openet Telecom Ltd	-	-	-	-
2/1/2017	Telia Co AB	Falt Communications	-	-	-	-
1/11/2017	-	SecureCom Mobile Inc	3	-	-	-
1/3/2017	Tangoe Inc SPV	Tangoe Inc	207	-	-	1.12x
12/29/2016	Marlin Equity Partners	Tangoe Inc	198	-	-	1.12x
12/27/2016	-	CafeX Communications	-	-	-	-
12/19/2016	Cisco Systems Inc	Viptela, Inc.	610	-	3	2.752
12/19/2016	Xura Inc	Ranzure Networks	-	-	-	-
11/29/2016	Indra Sistemas SA	Tecnocom Tele comunicaciones	365	-	-	0.84x
11/21/2016	Daisy Intermediate Holdings Ltd	Alternative Networks PLC	229	-	-	1.37x
11/14/2016	Siemens AG	Mentor Graphics Corp	4,332	-	-	3.79x
11/11/2016	Vodafone GmbH	RadioOpt GmbH	-	-	-	-
9/19/2016	Vista Equity Partners LLC	Infoblox Inc	1,268	-	-	3.54x
9/15/2016	Snap Tech IT Inc	SynerTel	-	-	-	-
9/8/2016	Micro Focus	Hewlett Packard Enterprise Software	8,800	-	-	-
9/8/2016	Kuang-Chi Global Community	Beyond Verbal Communications Ltd	3	-	-	-
9/6/2016	HCA Holdings Inc	Mobile Heartbeat LLC	-	-	-	-
8/31/2016	Genesys Tele communications	Interactive Intelligence Group	1,329	-	-	3.22x
8/18/2016	Vista Equity Partners LLC	Granicus Inc	-	-	-	-
8/9/2016	Aclara Technologies LLC	Tollgrade Communications Inc	-	-	-	-
7/24/2016	HyperGrid	Gridstore	-	-	-	-
7/22/2016	Core Security Sdi Corp	Damballa Inc	-	-	-	-
7/21/2016	Hellman & Friedman LLC	Genesys	900	-	-	-
7/12/2016	NetCracker Technology	CoralTree Systems	-	-	-	-
6/23/2016	Comcast	iControl Networks	-	-	-	-
6/20/2016	Francisco Partners	Dell Software	2,000	-	-	-

Telco Software M&A Market - Sector Trends and Valuation Analysis (2015—2017)

Significant M&A Transactions

Date	Acquirer	Target	Deal Value (\$ m)	Enterprise Value (\$ m)	Target Revenue (\$ m)	EV/ Target Revenue
6/17/2016	Charter Pacific Corp Ltd	Microlatch Pty Ltd	15	-	-	-
6/8/2016	ISigma Capital Corporation	VarioSecure	-	-	-	-
6/1/2016	SolarWinds	LogicNow	-	-	-	-
5/27/2016	Enghouse Systems	NetBoss Technologies	7	-	-	-
5/18/2016	Inteliquent Inc	Shopety Inc	-	-	-	-
5/9/2016	MaxLinear Inc	Broadcom Ltd	80	-	-	-
4/29/2016	Project Daytona Bidco Ltd	ANS Group PLC	-	-	-	-
4/28/2016	Wickr Inc	Net Power & Light Inc	-	-	-	-
4/27/2016	Trapp Technology Inc	Brinkster Communications	-	-	-	-
4/20/2016	Shareholder Value Management	Intershop Communications	-	-	-	-
4/19/2016	Francisco Partners	SintecMedia	400	-	-	-
4/11/2016	Altair Engineering Inc	AWE Communications	-	-	-	-
4/7/2016	Array Inc	Array Inc	46	-	-	-0.05x
3/31/2016	Golden River Resources Corp	GlobeKeeper LLC	-	-	-	-
3/15/2016	Daktronics	ADFLOW NETWORKS	-	-	-	-
3/11/2016	NICE Systems Ltd	Voice Print International Inc	-	-	-	-
3/9/2016	Creditors	Aspect Software Inc	-	-	-	-
3/9/2016	-	Nuance Communications	500	-	-	-
2/29/2016	Honor Crest Holdings Ltd	Global Link Communications Holdings	10	-	-	2.96x
2/21/2016	Nokia	Nakina Systems	-	-	-	-
2/12/2016	-	Interactions LLC	2	-	-	-
2/12/2016	Writtle Holdings Ltd	Tangent Communications	-	-	-	0.26x
2/8/2016	BroadSoft Inc	Transera Communications	-	-	-	-
2/3/2016	Cisco	Jasper	1,400	-	-	-
2/2/2016	InFocus Corp	Avistar Communications	-	-	-	-
1/20/2016	Investor Group	Synaptics Inc	-	-	-	-
1/14/2016	Vista Equity Partners LLC	Telarix Inc	-	-	-	-
1/14/2016	IK VII Fund	TeleComputing AS	-	-	-	-
1/13/2016	GlobalLogic Inc	Research & Engineering Center	-	-	-	-
1/8/2016	Enea	Centered Logic	-	-	-	-
1/8/2016	IK VII Fund	Centered Logic LLC	4	-	-	-
1/5/2016	Viabl LLC	Halupi LLC	-	-	-	-
12/31/2015	AudioCodes Ltd	Active Communications Europe BV	5	-	-	-
12/24/2015	Versata Inc	Compressus Inc	-	-	-	-
12/23/2015	PTC Inc	Kepware Inc	118	-	-	-
12/21/2015	ShoreTel Inc	Corvisa LLC	8	-	-	-
11/24/2015	Motorsport Network LLC	WildSoft Inc	-	-	-	-
11/23/2015	Comtech Tele communications	Tele Communication Systems Inc	422	-	-	1.16x
11/5/2015	Amdocs	cVidya Networks	30	-	-	-
10/30/2015	Norwest Equity Partners	Marco Inc	-	-	-	-
10/28/2015	Cisco Systems Inc	1Mainstream Inc	-	-	-	-
10/21/2015	Thoma Bravo	SolarWinds	4,500	-	-	-
10/19/2015	Enghouse Systems Ltd	CTI Group(Holdings) Inc	18	-	-	1.01x
9/30/2015	Silicom Ltd	ADI Engineering Inc	10	-	-	2.70x
9/22/2015	-	Sterlite Technologies	-	-	-	-
9/21/2015	iTeknik Holding	Nsync Services	-	-	-	-

Telco Software M&A Market - Sector Trends and Valuation Analysis (2015—2017)

Significant M&A Transactions

Date	Acquirer	Target	Deal Value (\$ m)	Enterprise Value (\$ m)	Target Revenue (\$ m)	EV/ Target Revenue
9/19/2015	Terago Networks	Codeninja Ltd.	-	-	-	-
9/15/2015	GTT Communications	One Source Networks Inc	175	-	-	-
9/15/2015	Volaris Group	Netadmin	-	-	-	-
9/10/2015	Ericsson	Envivio Inc.	88	-	-	2.04
8/19/2015	-	ePlus Inc	37	-	-	0.79x
8/17/2015	-	Allot Communications	15	-	-	-
7/28/2015	GovDelivery Inc	Vox Metropolis Inc	-	-	-	-
7/21/2015	Taehwa Jung	nTels Co Ltd	5	-	-	1.43x
7/20/2015	Accenture PLC	Servicios On Line Para Usuarios	-	-	-	-
6/23/2015	Redknee Solutions Inc	Orga Systems GmbH & Co KG	42	-	-	1.94x
6/7/2015	Investor Group	Aurum Pacific (China) Group Ltd	24	-	-	3.65x
6/1/2015	Investor Group	Nuri Telecom Co Ltd	14	-	-	2.83x
6/1/2015	Butler Industries Inc	NextiraOne Management SAS	-	-	-	-
5/28/2015	Avaya Inc	Esna Technologies Inc	-	-	-	-
5/22/2015	Investor Group	Gridbee Communications	2	-	-	-
4/29/2015	Amdocs	Comverse Inc.	273	-	-	-
4/29/2015	TPG Telecom Ltd	Amcom Tele communications Ltd	65	-	-	4.27x
4/22/2015	Francisco Partners LP	Procera Networks Inc	131	-	-	1.62x
4/14/2015	Creditors	Amper SA	-	-	-	-
4/14/2015	Investor Group	MegaPath Corp	5	-	-	-
3/30/2015	Ruifeng Petroleum Chemical	Kuanting Holdings Ltd	70	-	-	-
3/4/2015	The Newton Group Inc	ExtraTeam Inc	-	-	-	-
3/3/2015	Investor Group	Signal Information & Communication	3	-	-	7.42x
3/2/2015	Investor Group	Twilio Inc	6	-	-	-
3/2/2015	Kofax Ltd	Aia Holding BV	20	-	-	-
3/2/2015	Mitel Networks Corp.	Mavenir Systems Inc.	531	-	-	-
2/27/2015	-	Kitu Systems Inc	2	-	-	-
2/26/2015	Avtex Solutions LLC	KRP Communications	-	-	-	-
2/18/2015	Newspring Holdings Llc	X5 Solutions Inc	-	-	-	-
2/10/2015	Tremoko Oy Ab	Ixonos Oyj	1	-	-	1.22x
1/29/2015	One Call Now	Safeguard Communications	-	-	-	-
1/14/2015	Samsung Electronics Co Ltd	BlackBerry Ltd	-	-	-	-
1/6/2015	Vertical Communications	Voice Systems Inc	-	-	-	-
1/5/2015	Investor Group	IntroHive Inc	7	-	-	-
Low						0.67x
High						7.42x
Mean						2.39x

M&A Market and Process

Bois Capital brings deep sector understanding combined with a vast network of acquirers built over the course of many telecoms-related transitions. This enables us to properly position the sale of a business differently to each adjacent subsector pool of potential acquirers—each of which will be looking at the asset slightly differently. This deep experience in telecoms M&A, driving a competitive process, is the best path to finding the optimal exit in valuation and culture.

There are many adjacent sectors that are seeking to acquire in the telecom software space:

- | | |
|---|---|
| ⇒ Large telecom vendors | ⇒ Enterprise vendors looking to telecoms |
| ⇒ OSS/BSS solution providers | ⇒ Policy and mobile device management providers |
| ⇒ Mobile network quality companies | ⇒ Private equity firms |
| ⇒ Telecom professional services companies | |

In the course of recent transactions, Bois Capital has on average contacted well over 80 companies across the above seven categories. In our recent processes we have seen on average 20 or more companies signing NDAs and reviewing the CIM and speaking with management. While the engaged companies were different in most processes as each firm represented a different value proposition to prospective acquirers, this general level of appetite shows a deep pool of potential acquirers who have wherewithal to pull off the transaction, leverage their existing customer relationships and distribution channels to integrate the solution, and create a sizeable offering in this space. These players are actively searching for the right acquisition targets.

The typical process for one to explore the market, determine interest in a strategic sale and complete the transaction is around five to six months. Bois Capital runs a very streamlined process to help secure the right strategic partner and valuation for its clients. Bois Capital has a deep sector experience, senior level connections and execution expertise in the Telco Software sector.

If you are interested in exploring your growth options including a strategic exit, Bois Capital will be happy to schedule a brainstorming session, discuss the dynamics of your business, the strategic fit with potential targets within the analytics ecosystem, provide valuation metrics, and confidentially discuss the next steps.

BOIS CAPITAL

Peter Benedict
Managing Partner
New York
315 Madison Ave, Suite 3069
New York, NY 10017
T: +1-908-242-0829
Email: peter@boiscapital.com

www.boiscapital.com

BOIS CAPITAL

Tarang Shah
Managing Partner
California
620 Newport Center Drive, Suite 1100
Newport Beach, California 92660
T: +1-858-213-6700
Email: tarang@boiscapital.com

www.boiscapital.com