

AT&T

Patent Portfolio Analysis – Competitor Comparison

February 2019

Introduction

AT&T is the world's largest telecommunications company that provides wireless communications, local exchange, and long-distance services for consumers and businesses in the United States and internationally. The company offers its services in two segments: wireless and wireline.

For this report, we have analyzed a total of 17,064 currently active published patent applications in AT&T's portfolio. Note that we have not included the patent assets of Warner Media (Time Warner) while providing the analytics for AT&T's portfolio. Time Warner was acquired by AT&T in October 2016 and the deal closed in June 2018. We have however included the patent assets of Warner Media in the competitive comparison presented at the end of this report.

Unless otherwise stated, the report displays numbers for published patent applications. The analytics are presented in the various charts and tables that follow. These include the following,

- Portfolio Summary
- Published Applications – Growth
- Key Geographies
- Top Technologies
- Top Sub-technologies
- Top Forward Citing (FC) Assignees
- Technology Focus of FC Assignees
- Top 20 CPC Codes
- Growth of the Top 10 CPC Codes
- Patent transfers from AT&T
- Key Patents in the Portfolio
- Patent Quality by Sub-technologies
- High Value Patents – By Rating Buckets
- Taxonomy
- Competitor Comparison

Insights

- The average patent quality of the portfolio is relatively high. The portfolio has an average Relecura Star rating of 2.69 out of 5. Typically, a patent with a Relecura Star rating of 3 or more is deemed as one of high-quality.
- The US is the preferred jurisdiction for AT&T with 85% of its filings done here.
- About 50% of AT&T's patent portfolio covers the technology area of 'Data Transmission'.
- The CPC code H04B 3/52 (Systems for transmission between fixed stations via waveguides) shows a rapid year-on-year growth post 2015.
- A technology category-wise comparison shows that Warner Media has a stronger patent position in areas related to TV.
- The competitor comparison done, over the various technology categories, shows us that the combined portfolio of AT&T and Warner Media leads from an IP standpoint, against its competitors from the telecom, cable entertainment and video streaming sectors. Warner Media's patent assets enhance the coverage of the combined portfolio in technologies related to TV and video-on-demand.

Published Applications - Summary

TOTAL DOCUMENTS COUNT (APPLICATIONS)
17,064

PUBLICATION TYPES



● Applications ● Grants

Peak Year of Activity
 2018 (2,488)

Top Active Jurisdiction
 US (14,481)

IP TYPES



● Invention ● Design

No of technologies (226)

Top Rated
 US9692101B2 (5)

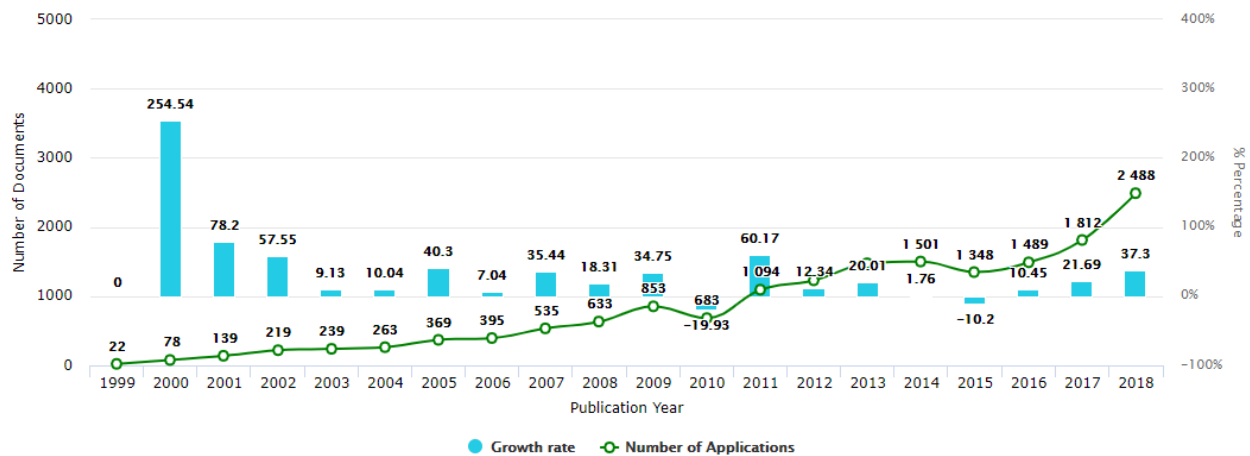
Top Cited
 US7873708B2 (488)

PATENT BY STAR RATING

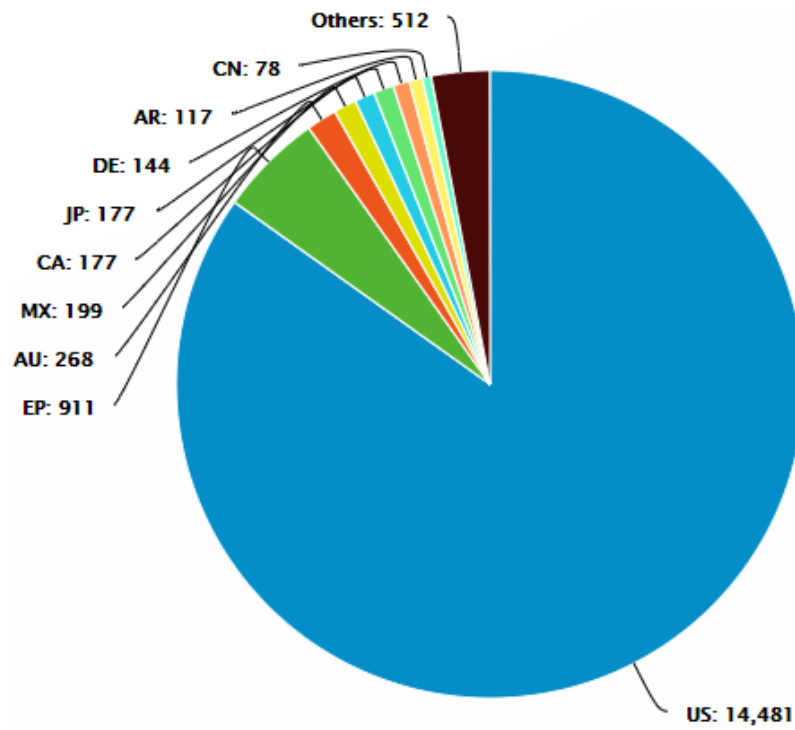
2.69



Published Applications - Growth



Key Geographies



Top Technologies

Technologies	# Applications
Data Transmission	8175
Digital Data Processing	4950
Wireless Communication Networks	4913
Telephonic Communication	3729
Pictorial Communication	3588
Signal Transmission	2434
Data Processing Systems	2124
Communication Switches & Relays	911
Multiplex Communication	791
Broadcast Communication	603

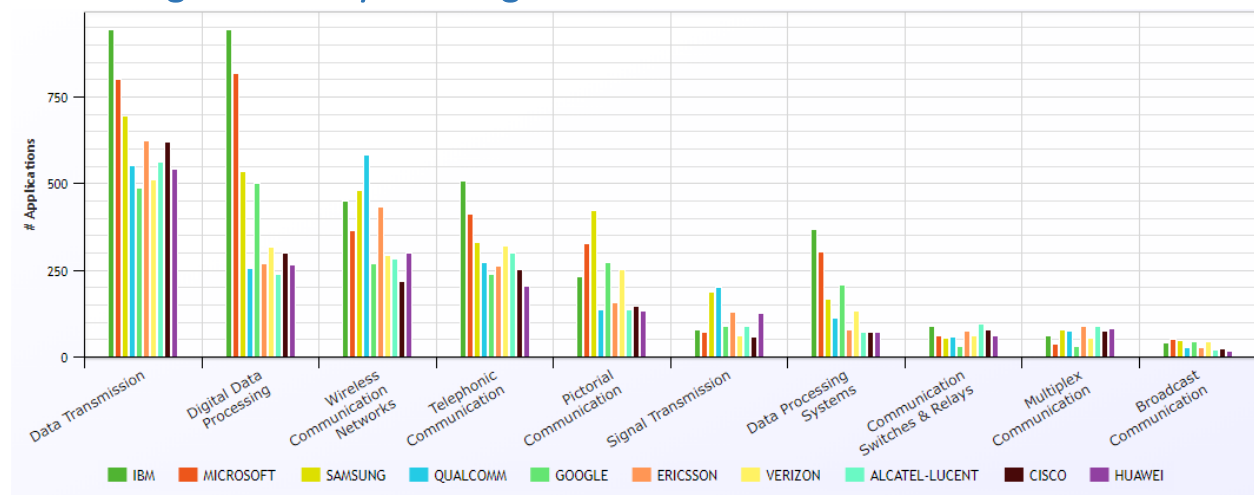
Top Sub-technologies

Sub-Technologies	# Applications
Data switching networks	3797
Arrangements, apparatus, circuits or systems for digital transmission	3286
Interactive TV, Video on demand	3018
Providing wireless communication services to user via network	2598
Automatic or semi-automatic telephone exchanges	2269
TV systems	2151
Communication protocols supporting network applications	2120
Architecture for network security	1530
Digital computers and data processing devices	1519
Network protocols for real time communication	1440

Top Forward Citing (FC) Assignees

FC Assignees	# Applications
IBM	1922
MICROSOFT	1638
SAMSUNG	1454
GOOGLE	1102
QUALCOMM	1044
ERICSSON	1013
VERIZON	996
CISCO	931
ALCATEL-LUCENT	899
HUAWEI	891

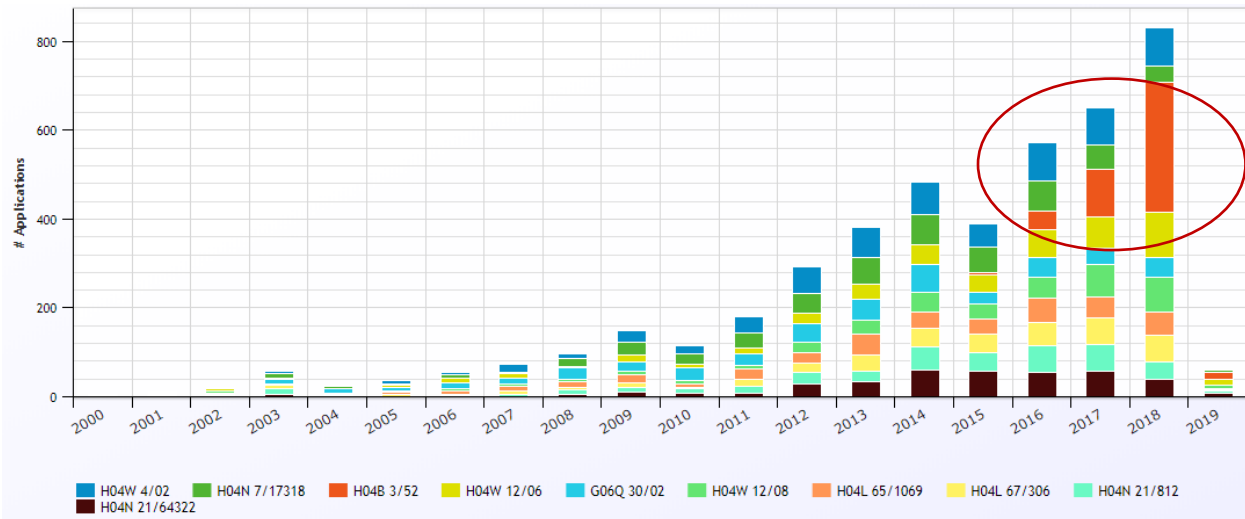
Technologies cited by FC Assignees



Published Applications - Top 20 CPC Codes

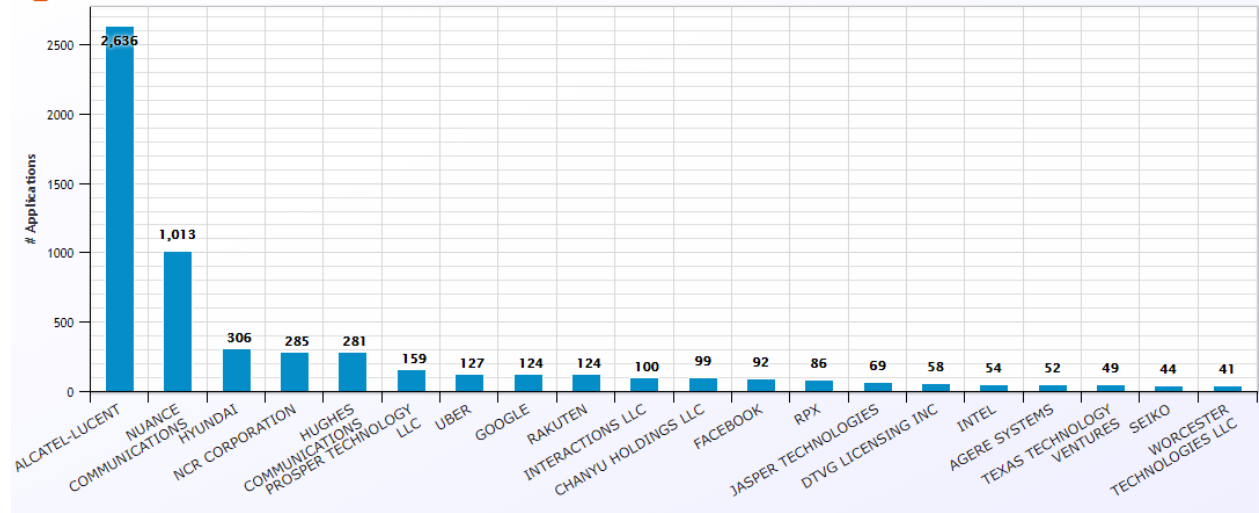
CPC Code	Description	# Applications
H04W 4/02	Providing wireless communication services to user via network >> Services making use of location information	647
H04N 7/17318	TV systems >> Direct or substantially direct transmission and handling of requests	526
H04B 3/52	Line transmission >> Systems for transmission between fixed stations via waveguides	467
H04W 12/06	Security arrangements, Authentication, Protecting privacy for wireless communication >> Authentication	463
G06Q 30/02	Data processing adapted for billing, commerce or marketing >> Marketing, e.g. market research and analysis, surveying, promotions, advertising, buyer profiling, customer management or rewards; Price estimation or determination	458
H04W 12/08	Security arrangements, Authentication, Protecting privacy for wireless communication >> Access security	397
H04L 65/1069	Network protocols for real time communication >> Setup	388
H04L 67/306	Communication protocols supporting network applications >> User profiles	383
H04N 21/812	Interactive TV, Video on demand >> involving advertisement data	383
H04N 21/64322	Interactive TV, Video on demand >> IP	376
H04N 21/47202	Interactive TV, Video on demand >> for requesting content on demand, e.g. video on demand	374
H04N 21/4532	Interactive TV, Video on demand >> involving end-user characteristics, e.g. viewer profile, preferences	354
H04N 21/6125	Interactive TV, Video on demand >> involving transmission via Internet	349
H04N 21/482	Interactive TV, Video on demand >> End-user interface for program selection	336
H04L 63/08	Architecture for network security >> for supporting authentication of entities communicating through a packet data network	335
H04N 21/6143	Interactive TV, Video on demand >> involving transmission via a satellite	334
H04L 65/1016	Network protocols for real time communication >> IMS	330
H04W 4/12	Providing wireless communication services to user via network >> Messaging; Mailboxes; Announcements	323
H04N 21/4788	Interactive TV, Video on demand >> communicating with other users, e.g. chatting	318
H04B 3/54	Line transmission >> Systems for transmission via power distribution lines	310

Evolution of Technologies - CPC Code Analysis



Class Code	Description
H04W 4/02	Providing wireless communication services to user via network >> Services making use of location information
H04N 7/17318	TV systems >> Direct or substantially direct transmission and handling of requests
H04B 3/52	Line transmission >> Systems for transmission between fixed stations via waveguides
H04W 12/06	Security arrangements, Authentication, Protecting privacy for wireless communication >> Authentication
G06Q 30/02	Data processing adapted for billing, commerce or marketing >> Marketing, e.g. market research and analysis, surveying, promotions, advertising, buyer profiling, customer management or rewards; Price estimation or determination
H04W 12/08	Security arrangements, Authentication, Protecting privacy for wireless communication >> Access security
H04L 65/1069	Network protocols for real time communication >> Setup
H04L 67/306	Communication protocols supporting network applications >> User profiles
H04N 21/812	Interactive TV, Video on demand >> involving advertisement data
H04N 21/64322	Interactive TV, Video on demand >> IP

Patent Application Transfers from AT&T to other Companies

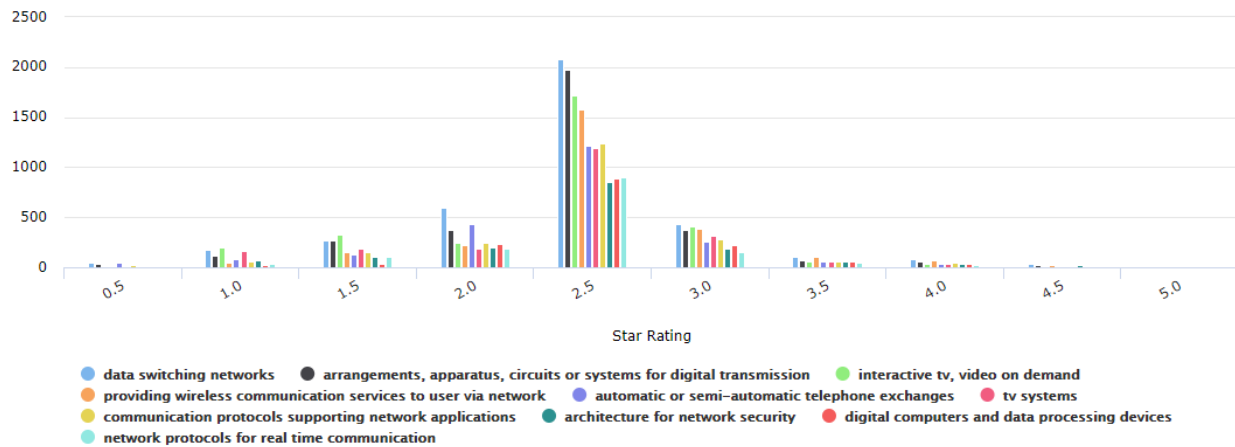


Key Patents

Publication Number	Title	Technologies	Star Rating
US9692101B2	Guided wave couplers for coupling electromagnetic waves between a waveguide surface and a surface of a wire	Electric Elements - Waveguides Signal Transmission	5
US9973299B2	Method and apparatus for adjusting a mode of communication in a communication network	Data Transmission Measurement - Electric & Magnetic Variables Power Supply & Distribution Circuits Signal Transmission Wireless Communication Networks Greentech - Reduction & Transmission Of Greenhouse Gases Greentech - Smart Grid	5
US10009067B2	Method and apparatus for configuring a communication interface	Signal Transmission Measurement - Electric & Magnetic Variables Power Supply & Distribution Circuits Greentech - Reduction & Transmission Of Greenhouse Gases Greentech - Smart Grid Data Transmission	4.5
US9544006B2	Transmission device with mode division multiplexing and methods for use therewith	Multiplex Communication Electric Elements - Aerials Signal Transmission	4.5
US8417939B2	Method and apparatus for file sharing between a group of user devices with encryption-decryption information sent via satellite and the content sent separately	Pictorial Communication Broadcast Communication Data Transmission	4.5
US10170840B2	Apparatus and methods for sending or receiving electromagnetic signals	Electric Elements - Aerials Electric Elements - Waveguides Electric Elements - Connectors, Collectors Signal Transmission	4.5
US9564947B2	Guided-wave transmission device with diversity and methods for use therewith	Signal Transmission Electric Elements - Waveguides Data Transmission	4.5
US10009901B2	Method, apparatus, and computer-readable storage medium for managing utilization of wireless resources between base stations	Wireless Communication Networks Data Transmission	4.5
US9628116B2	Apparatus and methods for transmitting wireless signals	Signal Transmission Electric Elements - Waveguides Electric Elements - Aerials Speakers, Microphones & Acoustic Transducers Digital Data Processing	4.5
US9917341B2	Apparatus and method for launching electromagnetic waves and for modifying radial dimensions of the propagating electromagnetic waves	Electric Elements - Waveguides Signal Transmission	4.5

Publication Number	Title	Technologies	Star Rating
US9653770B2	Guided wave coupler, coupling module and methods for use therewith	Electric Elements - Waveguides Electric Elements - Aerials Signal Transmission Wireless Communication Networks	4.5
US9847850B2	Method and apparatus for adjusting a mode of communication in a communication network	Data Transmission Measurement - Electric & Magnetic Variables Power Supply & Distribution Circuits Signal Transmission Wireless Communication Networks Greentech - Reduction & Transmission Of Greenhouse Gases Greentech - Smart Grid	4.5
US9912033B2	Guided wave coupler, coupling module and methods for use therewith	Electric Elements - Waveguides Electric Elements - Aerials Signal Transmission Wireless Communication Networks	4.5
US9871282B2	At least one transmission medium having a dielectric surface that is covered at least in part by a second dielectric	Electric Elements - Waveguides	4.5
US10063280B2	Monitoring and mitigating conditions in a communication network	Signal Transmission Signal Transmission Systems Electric Elements - Waveguides Electric Elements - Aerials Communication Switches & Relays	4.5
US10194437B2	Backhaul link for distributed antenna system	Wireless Communication Networks Signal Transmission Data Transmission Multiplex Communication Power Supply & Distribution Circuits	4.5
US10033107B2	Method and apparatus for coupling an antenna to a device	Electric Elements - Aerials Electric Elements - Waveguides Signal Transmission Data Transmission	4.5
US9628854B2	Method and apparatus for distributing content in a communication network	Pictorial Communication Wireless Communication Networks	4.5
US8174970B2	Methods of implementing dynamic QoS and/or bandwidth provisioning and related data networks, data service providers, routing gateways, and computer program products	Data Transmission Wireless Communication Networks	4.5
US8522312B2	Access control lists and profiles to manage femto cell coverage	Wireless Communication Networks Control Systems - General Digital Data Processing Data Processing Systems Signal Transmission Data Transmission Telephonic Communication	4.5

Patent Quality by Sub-technologies *(Relecura Star Rating on a scale of 5)*



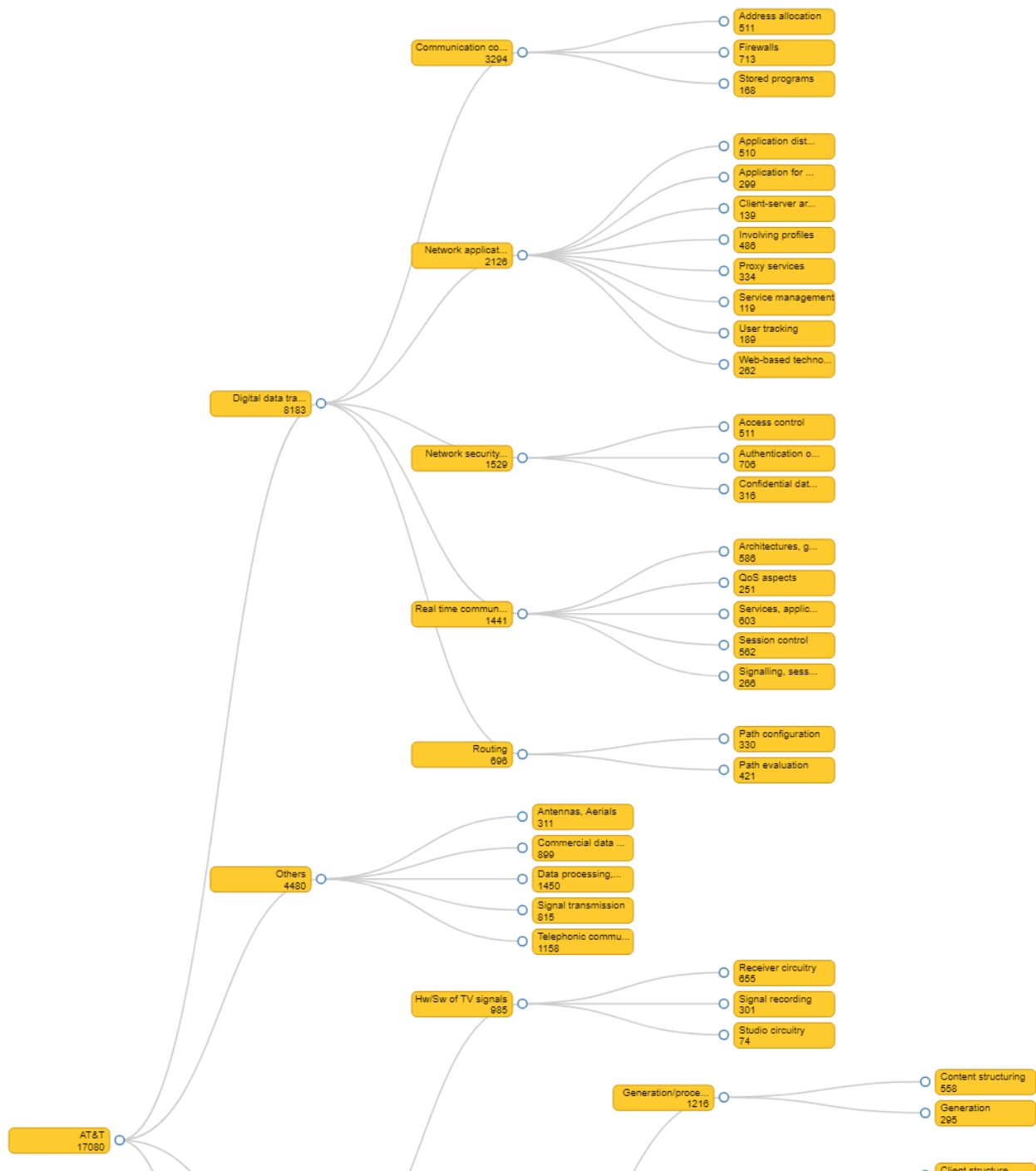
Sub-technologies	Star Rating									
	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
Data switching networks	44	147	279	610	2,077	429	106	76	30	
Arrangements, apparatus, circuits or systems for digital transmission	34	100	276	383	1,972	369	72	58	23	
Interactive TV, Video on demand	11	194	315	257	1,715	412	64	38	12	
Providing wireless communication services to user via network	11	45	144	226	1,581	389	108	68	26	
Automatic or semi-automatic telephone exchanges	43	83	134	430	1,215	258	63	39	5	
TV systems	12	158	174	203	1,191	313	59	33	8	
Communication protocols supporting network applications	22	52	154	248	1,237	276	63	51	17	
Architecture for network security	15	57	108	198	851	192	54	36	19	
Digital computers and data processing devices	10	28	40	229	880	226	58	39	11	
Network protocols for real time communication	5	30	105	184	896	156	41	19	4	

High Value Patents – By Rating Buckets

Star Rating	# Applications
5	2
4.5	211
4	283
3.5	432
3	1884

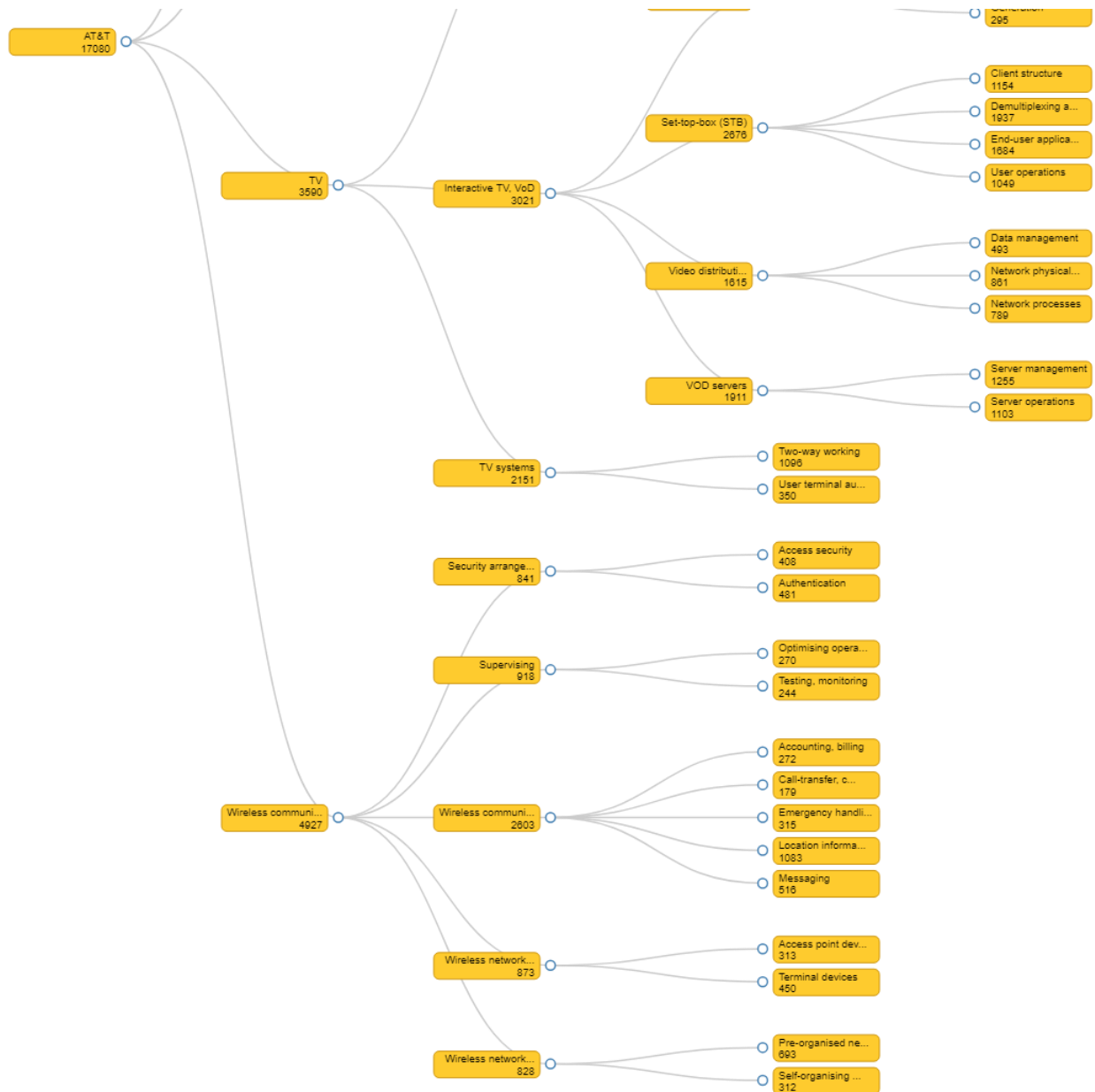
Taxonomy (Showing published applications in each category)

Part A



Taxonomy (Showing published applications in each category)

Part B



Competitor Comparison – Category-wise Break-up (# Applications given for color-coded categories)

Technology Categories			AT&T	Warner Media	AT&T + Warner Media	Telecom			Cable entertainment			Streaming			
						Verizon	T-Mobile	Sprint	Comcast	Walt Disney	Charter Communications	Netflix	Amazon	Apple	
Digital data transmission	Communication control	Address allocation	511	0	511	250	101	104	133	11	45	7	293	259	
		Firewalls	713	6	719	353	95	139	102	31	54	22	852	387	
		Stored programs	168	5	173	90	11	37	29	12	15	31	556	242	
	Network application protocols	Application distributed across nodes	510	36	546	198	30	71	125	25	23	91	1173	610	
		Application for user terminal	299	3	302	76	39	38	31	13	11	7	123	252	
		Client-server architectures	139	26	165	36	6	8	20	48	11	20	297	88	
		Involving profiles	486	15	501	143	61	66	46	21	17	11	218	254	
		Proxy services	334	30	364	204	48	77	95	8	28	10	470	238	
		Service management	119	23	142	51	20	24	26	3	13	6	131	144	
		User tracking	189	0	189	69	18	20	16	23	7	13	156	131	
		Web-based technologies	262	14	276	96	39	49	53	30	26	21	502	285	
	Network security architecture	Access control	511	17	528	234	79	125	125	56	53	9	614	463	
		Authentication of entities communicating	706	4	710	263	160	159	103	48	57	17	793	769	
		Confidential data exchange	316	3	319	124	30	42	57	13	53	26	340	245	
	Real time communication	Architectures, gateways	586	10	596	242	282	110	37	0	10	0	8	121	
		QoS aspects	251	4	255	137	50	55	58	22	12	59	65	101	
		Services, applications	603	13	616	238	86	73	185	67	95	71	175	346	
		Session control	562	0	562	322	248	133	92	8	10	13	40	279	
		Signalling, session protocols	266	0	266	205	157	75	19	0	3	0	3	90	
	Routing	Path configuration	330	0	330	139	18	45	22	0	14	4	235	39	
		Path evaluation	421	0	421	160	26	55	21	2	12	4	145	91	
	Others	Antennas, Aerials	311	7	318	10	7	22	0	2	2	0	81	1138	
		Commercial data computing	899	13	912	480	72	202	52	146	11	34	2547	1153	
Data processing, storage		1450	122	1572	738	141	336	136	566	12	55	5247	16006		
Signal transmission		815	2	817	136	26	116	2	15	13	0	86	1284		
Telephonic communication		1158	0	1158	375	132	297	13	10	13	0	226	2614		
TV	Hw/Sw of TV signals	Receiver circuitry	655	51	706	191	3	16	228	99	122	18	52	267	
		Signal recording	301	102	403	102	9	5	96	94	85	32	69	365	
		Studio circuitry	74	46	120	54	2	3	21	126	1	7	262	1413	
	Interactive TV, VoD	Generation/processing of content	Content structuring	558	86	644	142	11	11	341	122	131	76	89	234
			Generation	295	59	354	79	4	7	196	99	81	23	58	129
			Client structure	1154	71	1225	239	17	43	256	141	235	31	63	433
		Set-top-box (STB)	Demultiplexing additional data	1937	162	2099	466	39	42	752	280	428	151	194	782
			End-user applications	1884	157	1841	465	11	55	598	189	366	75	160	438
			User operations	1049	110	1159	224	7	25	409	142	241	100	95	170
		Video distribution signal control	Data management	493	37	530	138	1	16	311	20	204	42	46	126
			Network physical structure	861	35	896	72	23	31	130	23	227	39	20	51
	Network processes		789	33	822	115	5	26	260	46	243	61	45	152	
	VOD servers	Server management	1255	137	1392	316	4	43	562	154	435	113	154	219	
		Server operations	1101	109	1212	273	39	39	681	175	381	150	165	276	
			1096	54	1150	239	10	38	404	88	354	22	41	132	
TV systems	Two-way working	350	17	367	25	0	6	115	16	23	0	12	52		
	User terminal authorization	408	2	410	64	133	155	24	8	17	4	65	379		
Wireless communication networks	Security arrangements	Access security	481	0	481	140	154	160	26	5	36	9	136	717	
		Authentication	270	0	270	40	90	133	81	0	14	0	10	218	
	Supervising	Optimising operational condition	244	0	244	60	87	77	42	0	12	0	19	234	
		Testing, monitoring	272	0	272	76	155	74	0	1	4	0	12	62	
	Wireless communication services	Accounting, billing	179	0	179	46	88	41	12	0	1	0	3	124	
		Call-transfer, call-hold	315	0	315	68	96	66	19	4	3	0	9	78	
		Emergency handling services	1083	3	1086	245	183	249	67	33	23	0	225	1029	
		Location information	516	1	517	110	218	122	22	10	5	0	32	305	
	Wireless network devices	Messaging	313	0	313	34	90	176	143	0	17	0	17	351	
		Access point devices	450	0	450	91	211	277	80	15	11	0	50	1455	
	Wireless network topologies	Terminal devices	693	0	693	103	161	214	54	15	58	0	47	861	
		Pre-organised networks	312	1	313	53	65	69	19	4	13	0	39	497	

Contact Us

Do get in touch with us with your specific needs related to intelligence and decision support on all matters related to technology and its business impact. We will figure the best way to address your needs with an appropriate combination of our technology and reports. We offer a range of tailored solutions and flexible engagement models.



info@relecura.com



+1 510 675 0222



www.twitter.com/relecura



www.linkedin.com/company/relecura

About Relecura

Relecura is a full-stack cognitive cloud platform that provides custom intelligence and reports on patent portfolios, technologies and companies. It does this by capturing and organizing the knowledge from various document repositories (patents, scientific literature) and subject matter experts in a flexible and collaborative manner, into a knowledge-base.

Relecura offers IP analytics tools and a custom enterprise platform to corporations, law firms, IP services firms, R&D organizations and academic institutions. The enterprise platform integrates the discovery and analysis of public documents with internal company documents. Relecura also has an API to help create custom tools for IP and business intelligence. For more details visit www.relecura.com.

Disclaimer

This document is provided for information purposes only and the contents hereof are subject to change without notice. This document, including the information and analysis and any opinion or recommendation, is neither legal advice nor intended for investment purposes. This document is not warranted to be error-free, nor subject to any other warranties or conditions, whether expressed orally or implied in law, including implied warranties and conditions of merchantability or fitness for a particular purpose. Relecura Inc. specifically disclaims any liability with respect to this document and no contractual obligations are formed either directly or indirectly by this document.