Tencent Holdings Limited

Patent Portfolio Analysis

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Introduction

Tencent Holdings is a Chinese investment holding company principally involved in providing value-added services (VAS) and online advertising services. The company operates through three main segments. The VAS segment provisions online/mobile games, community value-added services and applications across various internet and mobile platforms. The Online Advertising segment is engaged in serving display-based and performance based online advertising. The third segment has various offerings that include cloud and payment services. [1]

For this report, we have analyzed a total of 24,873 currently active published patent applications in the Tencent Holdings portfolio. Unless otherwise stated, the report displays numbers for published patent applications that are in force. The analytics are presented in the various charts and tables that follow. These include the following,

- Published Applications – Summary
- Published Applications – Growth
- Key Geographies
- Top Sub-technologies
- Evolution of Sub-technologies
- Top IPC Codes
- Evolution of IPC Codes
- Top Forward Citing (FC) Assignees
- Technologies cited by FC Assignees
- Topic Map – Concepts
- Technology Trendlines - Patents in Tencent's Portfolio
- Competitor Comparison by Technology Categories
- Portfolio Taxonomy

Sources

1. Tencent (Wikipedia)

Insights

- There is a steady upward trend in the year-wise number of published applications from 2013 onwards. The trend was flat for 2016-2017 with an upward surge post 2017.
- China with a more than 70% share of the published applications, is the preferred home jurisdiction for Tencent to file in.
- A category-wise technology trendline analysis shows that Tencent's patent assets addressing technologies related to video games show a steady increase from 2014 onwards. This is a growing segment in its portfolio.
- A category-wise competitor comparison shows that Alphabet leads Tencent in most of the technology categories covered by Tencent's portfolio. Tencent however has a stronger patent coverage in technologies related to video games compared to its competitors.

Published Applications – Summary

TOTAL DOCUMENTS COUNT (APPLICATIONS)

24,873

PUBLICATION TYPES

13,342 | 11,432

Applications | Grants

IP TYPES

24,515 | 181 | 78

Invention | Design | Model

Peak Year of Activity

2018 (6,252)

No of technologies (128)

Top Active Jurisdiction

CN (17,773)

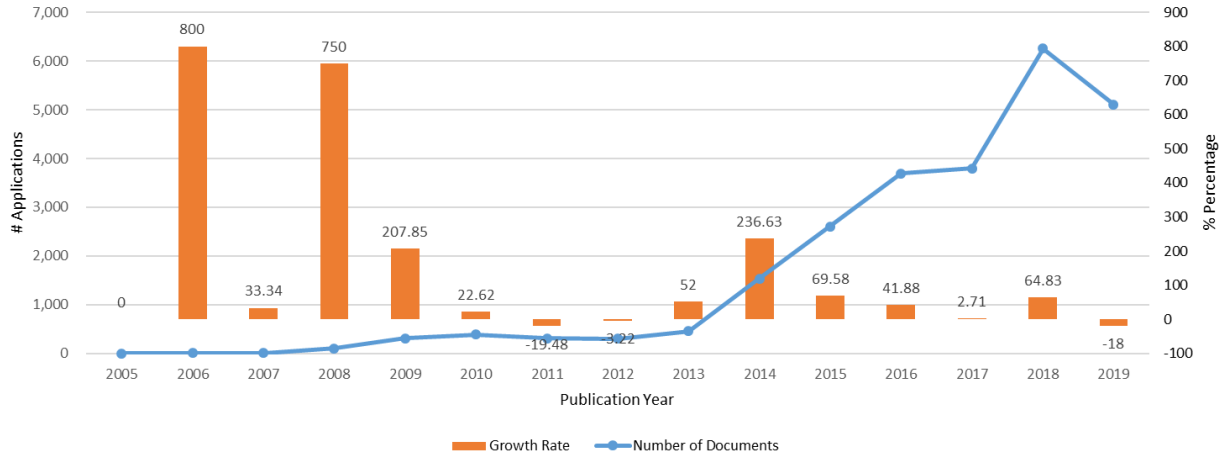
Top Rated

US10055731B2 (4.5)

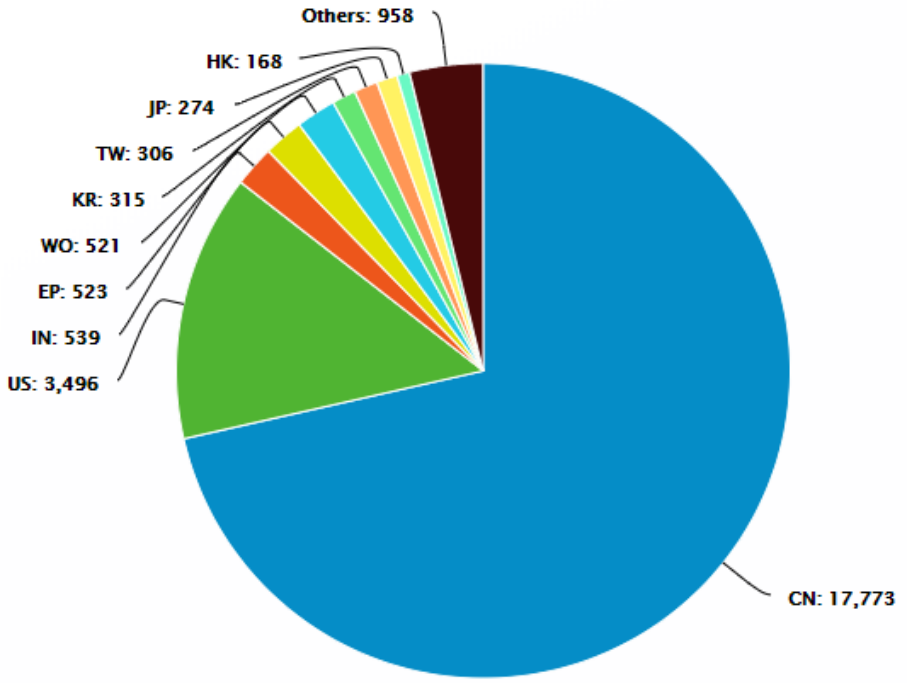
Top Cited

US7512407B2 (244)

Published Applications – Growth



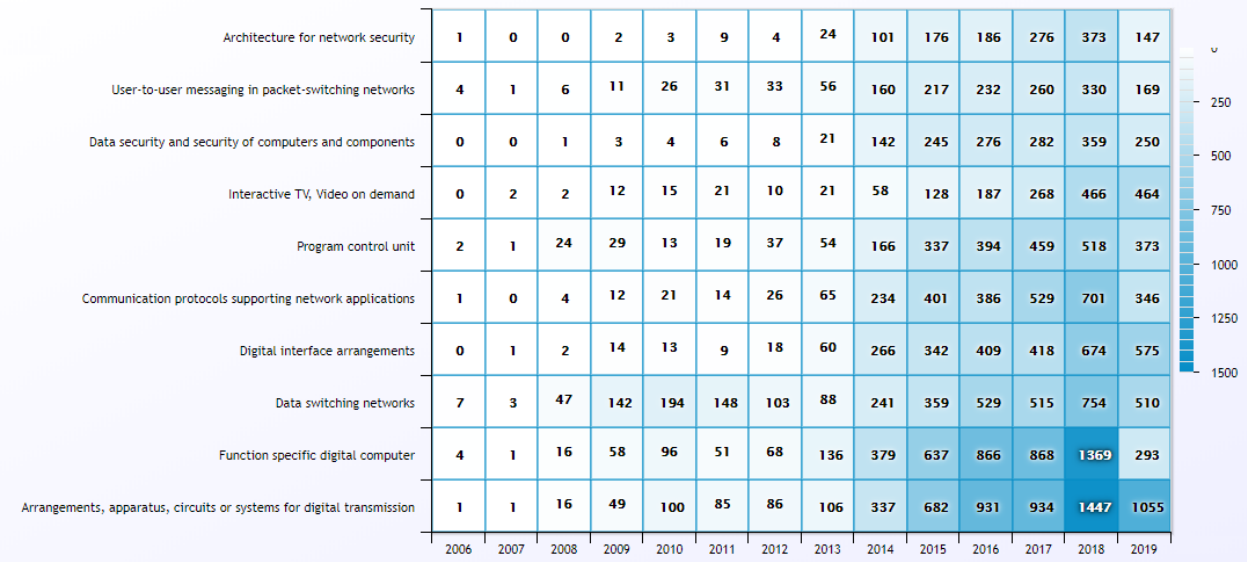
Key Geographies



Top Sub-technologies

Sub-Technologies	# Applications
Arrangements, apparatus, circuits or systems for digital transmission	5,826
Function specific digital computer	4,840
Data switching networks	3,636
Digital interface arrangements	2,800
Communication protocols supporting network applications	2,738
Program control unit	2,422
Interactive TV, Video on demand	1,654
Data security and security of computers and components	1,595
User-to-user messaging in packet-switching networks	1,532
Architecture for network security	1,299
Reading or recognising printed or written characters	1,210
Data processing adapted for billing, commerce or marketing	1,181
Providing wireless communication services to user via network	1,172
Error detection or correction and monitoring computing systems	1,094
Aspects of video games	1,010
Data processing adapted for business sector	841
Telephone substation equipment	819
Data processing in relation to administration and management	649
Cryptographics for secret digital communication	643
Data processing in relation to payments	635

Evolution of Sub-technologies

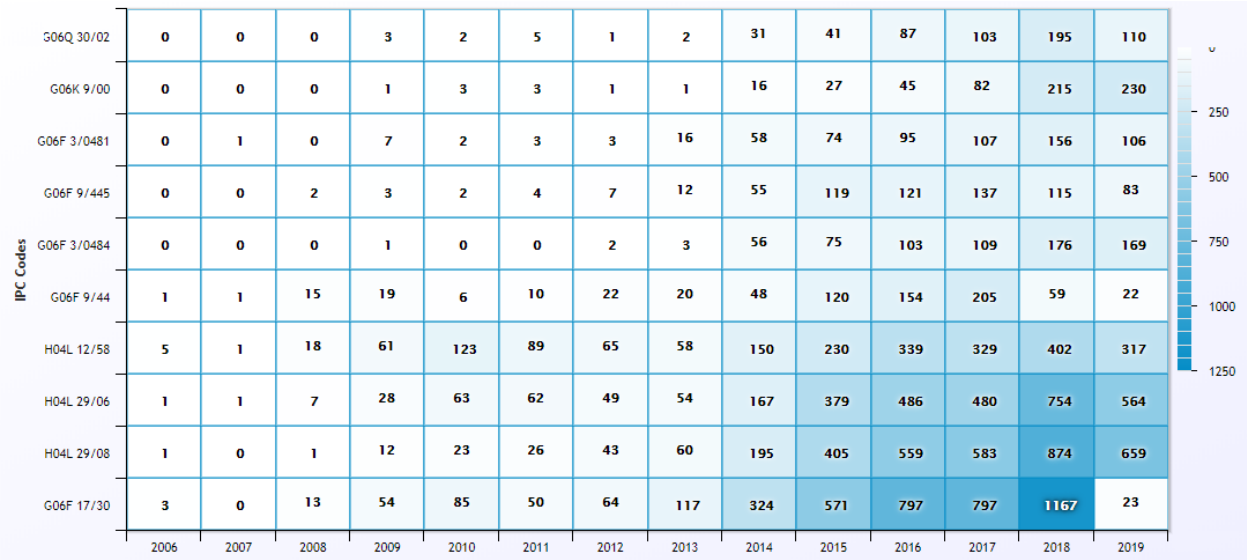


Top IPC Codes

IPC Code	Description	# Applications
G06F 17/30	Digital computing or data processing equipment or methods, specially adapted for specific functions > Information retrieval; Database structures therefor	4,062
H04L 29/08	characterised by a protocol > Transmission control procedure	3,439
H04L 29/06	Communication control; Communication processing > characterised by a protocol	3,091
H04L 12/58	Store-and-forward switching systems > Message switching systems	2,184
G06F 9/44	Arrangements for executing specific programmes	699
G06F 3/0484	Interaction techniques based on graphical user interfaces [GUIs] > for the control of specific functions or operations	692
G06F 9/445	Arrangements for executing specific programmes > Programme loading or initiating	656
G06F 3/0481	Interaction techniques based on graphical user interfaces [GUIs] > based on specific properties of the displayed interaction object or a metaphor-based environment	624
G06K 9/00	Methods or arrangements for reading or recognising printed or written characters or for recognising patterns, e.g. fingerprints	624
G06Q 30/02	Marketing	578
G06F 3/0488	Interaction techniques based on graphical user interfaces [GUIs] > using specific features provided by the input device	572
G06F 11/36	Error detection; Error correction; Monitoring > Preventing errors by testing or debugging of software	562
H04L 12/24	Data switching networks > Details > Arrangements for maintenance or administration	518
H04M 1/725	Substation extension arrangements; Cordless telephones, i.e. devices for establishing wireless links to base stations without route selecting > Cordless telephones	510

IPC Code	Description	# Applications
G06K 9/62	Methods or arrangements for reading or recognising printed or written characters or for recognising patterns> Methods or arrangements for recognition using electronic means	434
H04L 9/32	Arrangements for secret or secure communication > including means for verifying the identity or authority of a user of the system	430
H04L 12/26	Data switching networks > Details > Monitoring arrangements; Testing arrangements	407
G06F 17/27	Handling natural language data > Automatic analysis	387
G06Q 50/00	Systems or methods specially adapted for a specific business sector	362
H04N 21/472	End-user interface for requesting content, additional data or services; End-user interface for interacting with content	333

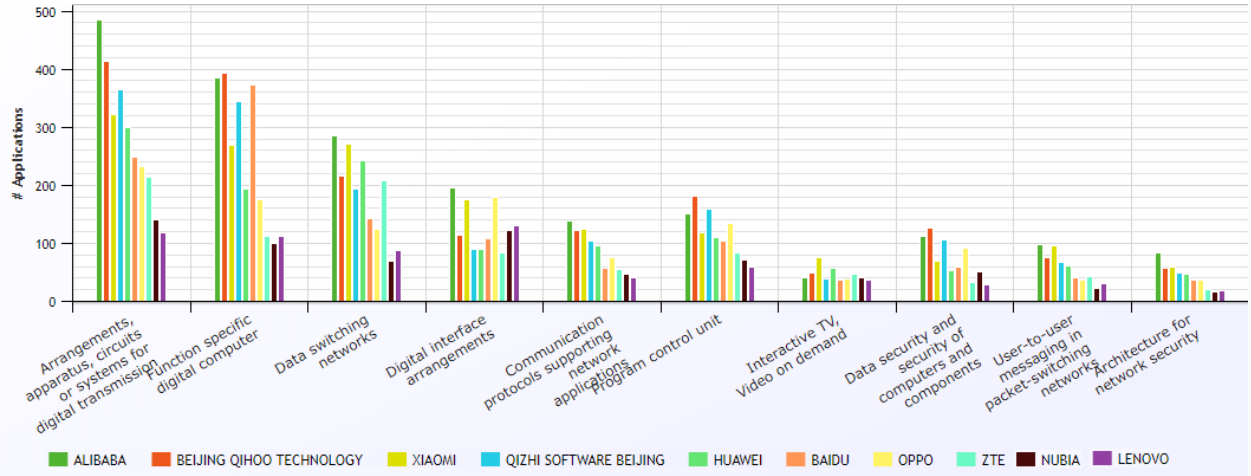
Evolution of IPC Codes



Top Forward Citing (FC) Assignees

FC Assignees	# Applications
ALIBABA	1,463
BEIJING QIHOO TECHNOLOGY	1,333
XIAOMI	1,165
QIZHI SOFTWARE BEIJING	1,142
BAIDU	990
OPPO	971
HUAWEI	940
ZTE	698
NUBIA TECHNOLOGY	577
LENOVO	525

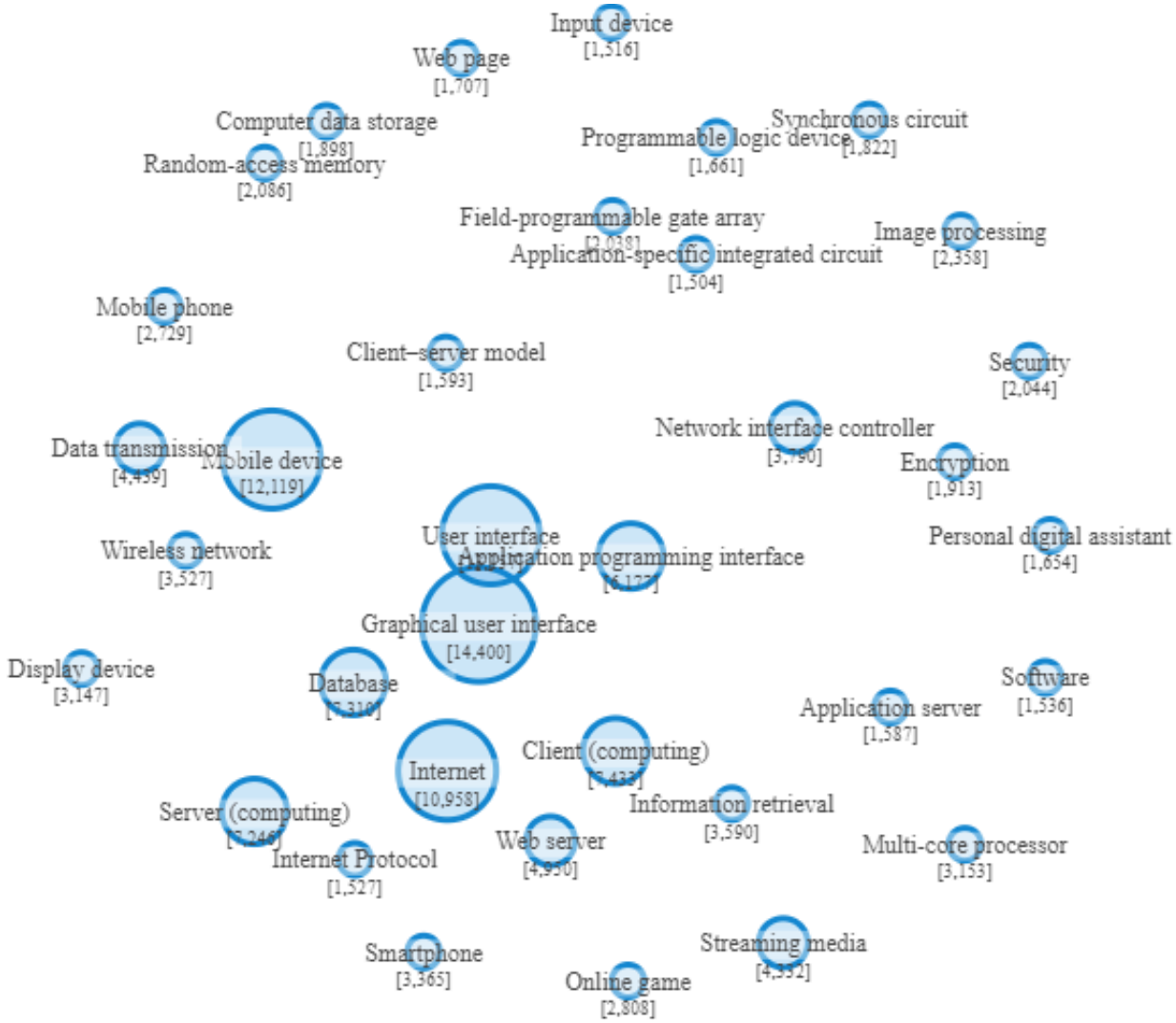
Technologies cited by FC Assignees



Technologies	ALIBABA	QIHOO	XIAOMI	QIZHI	HUAWEI	BAIDU	OPPO	ZTE	NUBIA	LENOVO
Arrangements, apparatus, circuits or systems for digital transmission	485	413	322	365	300	248	232	213	140	119
Function specific digital computer	386	393	269	345	193	372	176	113	99	113
Data switching networks	285	215	271	194	242	143	124	208	70	88
Digital interface arrangements	195	114	176	89	89	107	180	83	122	131
Communication protocols supporting network applications	139	123	124	104	95	57	76	54	46	40
Program control unit	150	181	118	159	109	103	135	83	72	60
Interactive TV, Video on demand	41	49	76	39	57	37	39	47	40	36
Data security and security of computers and components	113	126	70	106	52	60	92	32	50	28
User-to-user messaging in packet-switching networks	98	75	95	67	61	40	36	42	22	30
Architecture for network security	83	58	59	49	46	36	36	20	17	19

Topic Map – Concepts

- The bubble size corresponds to the total number of patent applications for each concept.
- The bubble proximity corresponds to the "relatedness" of the individual concepts.



Technology Trendlines – Patents in Tencent's Portfolio

(# Applications given for color-coded categories)

Technology Categories			2014	2015	2016	2017	2018	2019	Trendline
Data Processing	Data security	Authentication	46	73	118	97	147	101	
		Monitoring	72	139	104	134	149	91	
	Function specific	Info retrieval	334	598	817	801	1168	32	
		Natural language	69	99	105	112	252	237	
	User interface	Input / Output	248	321	374	368	579	496	
Data Systems	Billing, commerce	Market research	52	86	125	136	242	150	
	Business	Social networking	63	90	113	98	182	90	
	Management, admin	Office automation	61	71	68	42	65	38	
	Payments	Architecture	11	72	55	38	68	55	
		Protocols	18	99	71	49	95	63	
Data Transmission	Messaging	In social networks	54	68	97	114	136	66	
		Instant messaging	98	111	135	141	191	99	
		Multimedia	11	16	20	43	47	52	
	Network security	Authentication	42	83	103	154	204	88	
		Malicious traffic	34	63	43	77	99	42	
		Network resources	32	52	50	66	87	42	
		Secure data exchange	17	23	40	32	72	26	
	Protocols	Distributed applications	69	148	117	164	201	113	
		File transfer	39	56	54	66	78	36	
		Protocols for client-server architectures	20	47	46	49	69	46	
		Push-based	20	40	66	92	118	65	
		Web-based	71	105	89	99	139	79	
Others	Data presentation	Character recognition	33	69	104	150	408	435	
		Sensing cards	8	27	45	34	40	28	
	Image processing	2D images	20	41	45	51	87	82	
		3D images	0	8	12	24	73	77	
		Animation	4	12	20	24	60	60	
		Image analysis	4	10	18	37	91	78	
		Image enhancements	4	13	17	37	66	82	
	Pictorial communication	Coding, decoding	14	15	40	38	97	159	
		Interactive TV, VOD	59	131	193	270	470	471	
	Video games	Character control	7	18	13	31	96	117	
		Content creation	16	20	17	13	50	54	
		Device interconnection	29	51	43	41	78	75	
		Signal control	12	18	26	37	130	144	
		Special modes	5	10	17	25	101	114	
Wireless Networks	Communication	Auxiliary data	36	49	53	41	57	31	
		Location based	60	103	87	68	77	70	
		Messaging	56	63	64	43	51	28	
	Security	Access	7	11	22	21	37	22	
		Authentication	20	30	43	54	88	47	

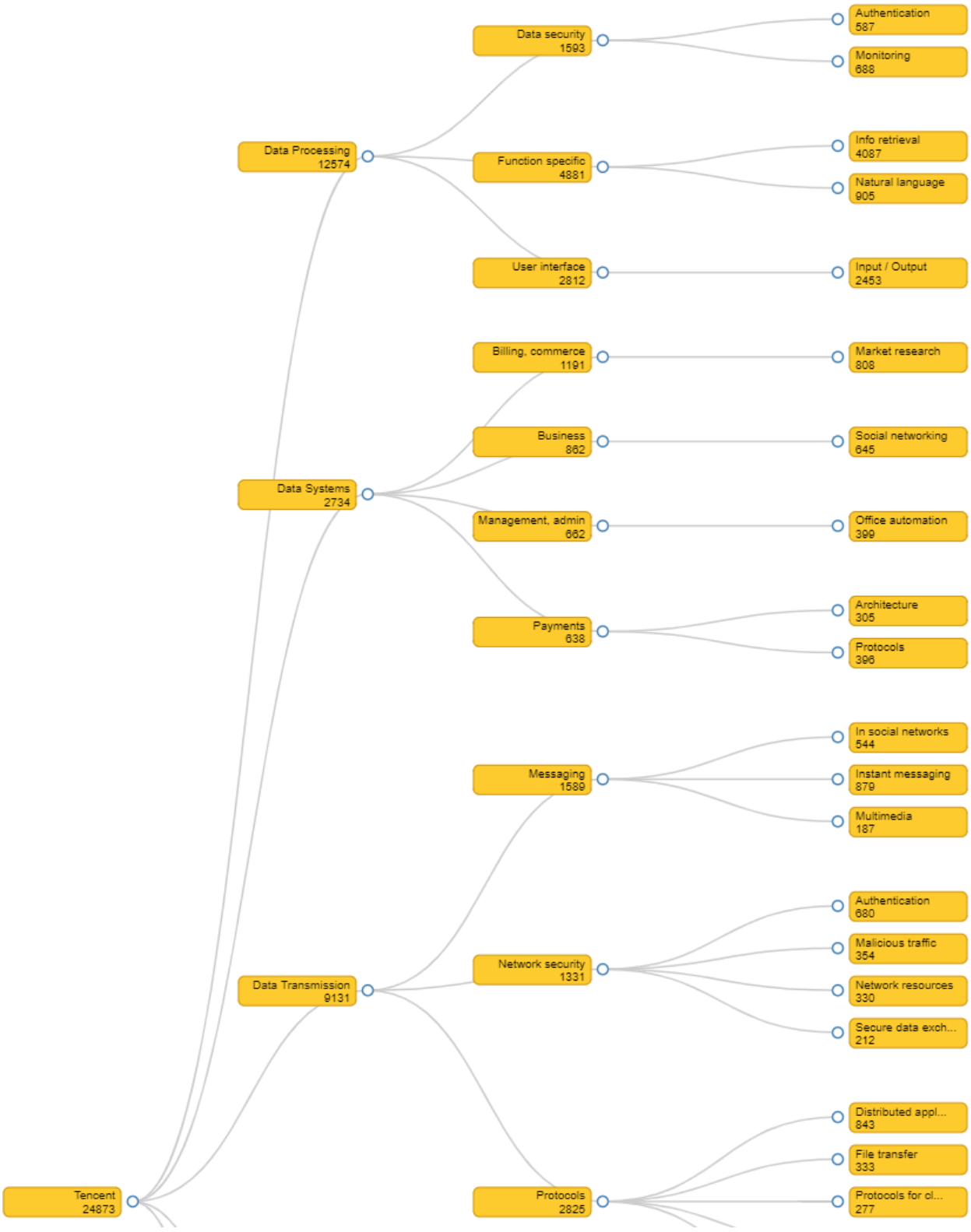
Competitor Comparison – Break-up by Technology Categories

(# Applications given for color-coded categories)

Technology Categories			Tencent	Alphabet	Facebook	Amazon	Alibaba	Baidu	Rakuten
Data Processing	Data security	Authentication	587	1122	226	480	1174	183	120
		Monitoring	688	641	53	390	423	163	4
	Function specific	Info retrieval	4087	8927	2064	2176	4747	3164	892
		Natural language	905	3429	733	665	1071	910	317
	User interface	Input / Output	2453	6822	2073	1242	1781	889	580
Data Systems	Billing, commerce	Market research	808	4552	2091	1105	1509	304	933
	Business	Social networking	645	1110	2877	103	196	34	37
	Management, admin	Office automation	399	2000	1098	241	313	44	126
	Payments	Architecture	305	517	164	329	722	26	183
		Protocols	396	476	118	228	1322	73	113
Data Transmission	Messaging	In social networks	544	446	1210	39	130	11	13
		Instant messaging	879	586	620	45	439	26	16
		Multimedia	187	120	249	13	65	6	4
	Network security	Authentication	680	1258	298	833	1004	92	64
		Malicious traffic	354	263	91	334	380	65	4
		Network resources	330	900	432	639	399	42	22
		Secure data exchange	212	640	91	376	229	29	20
	Protocols	Distributed applications	843	1561	692	1275	715	148	64
		File transfer	333	242	117	123	164	50	20
		Protocols for client-server architectures	277	534	213	342	272	25	14
		Push-based	397	222	283	71	273	136	2
		Web-based	600	1074	651	543	524	92	58
Others	Data presentation	Character recognition	1211	3535	612	794	1391	1267	325
		Sensing cards	177	300	29	153	247	16	14
	Image processing	2D images	341	847	243	167	149	93	107
		3D images	205	683	148	87	72	38	37
		Animation	221	156	99	23	68	16	49
		Image analysis	239	1062	234	253	152	269	121
		Image enhancements	224	445	132	50	82	78	27
	Pictorial communication	Coding, decoding	415	1132	61	80	88	13	52
		Interactive TV, VOD	1660	3266	560	491	549	292	184
	Video games	Character control	275	14	1	14	2	0	2
		Content creation	173	78	8	41	2	2	1
		Device interconnection	328	112	15	95	0	2	1
		Signal control	370	59	15	33	6	2	0
		Special modes	271	11	3	19	5	7	3
Wireless Networks	Communication	Auxiliary data	260	375	500	44	52	7	1
		Location based	466	1551	658	272	354	170	14
		Messaging	337	420	300	39	169	39	15
	Security	Access	120	401	99	81	144	7	14
		Authentication	274	665	160	149	336	27	12

Portfolio Taxonomy

Part A



Part B


Push-based
397
Web-based
600
Data presentation
1455
Character recogn...
1211
Sensing cards
177
2D images
341
3D images
205
Image processing
1494
Animation
221
Image analysis
239
Image enhancements
224
Others
5712
Pictorial commun...
2466
Coding, decoding
415
Interactive TV, VOD
1660
Character control
275
Content creation
173
Video games
1014
Device interconn...
328
Signal control
370
Special modes
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Auxiliary data
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Communication
1182
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466
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1881
Access
120
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522
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