

Patent sweep

US11563655B2 — claim 1

Examiner Search · Patent invalidity and prior-art search

2026-10-24

1 The matter

US11563655B2 — Network monitoring apparatus and method thereof in programmable network virtualization

Assignee: Arc Link LLC · Filed 2020-12-21 · Priority (record) 2020-04-28

Target claim 1 (4 elements as split below)

Prior-art cutoff: 2020-04-28 — priority date, confirmed by the requester on the order form. Every query below is capped to it.

Run US11563655B2-7UXb9mjuXBxCj6hXXSRcqgDz

2 Bottom line

3 of 4 elements of claim 1 are explicitly disclosed by the 5 prior-art references read in full, led by US9893983B2. Not found in those references: E3.

Claim 1. 3 of 4 elements are matched to a passage in US9893983B2. No single document read contains passages for every element.

- **US9893983B2** (2018-02-13): E1, E2, E4

Weakest element: E3: not shown in terms by the documents read. These are statements of what the documents show; this report expresses no opinion on anticipation or obviousness.

2b The record

Facts from the file wrapper, the Office's citations and our litigation watch for this patent, read for this run.

Why it was allowed	The examiner's reasons (NOA 2022-10-26): "The prior art of record considered individually or in combination, fails to fairly show or suggest wherein a statistics virtualization module configured to receive a request for individual physical resource consumption statistics for a first virtual network out of a set of multiple separately managed virtual networks, and wherein determining whether at least one physical resource is shared between the first virtual network and the at least one other of the multiple separately managed virtual networks, and wherein isolatedly providing individual physical resource consumption statistics to the first virtual network based on a determination of whether the at least one physical resource is shared, and wherein the statistics virtualization module provides respective virtual flow entry statistics to the first virtual network, including the following, provisioning of virtual flow entry statistics for the first virtual network, provisioning of virtual port statistics based on at least one physical resource for the first virtual network, in addition to the other limitations in the specific manner as recited in claims 1 - 12." The claims were amended in the last response before allowance. The applicant argued over the cited art before allowance. (11 actions and responses on the record.)
Where the examiner looked	2 search session(s), 44 query lines in US-PGPUB, USPAT, USOCR, FPRS, EPO, JPO, DERWENT, IBM_TDB, FIT; classes Ho4L 43/062, 45/56, 12/4641, 41/142, 046, 47/2483, 2441, Ho4L 45/02, 47/829, 762, 15, 822, 70, 781, 808, Ho4L 43/065 15 of those queries returned zero hits: L9, L10, L11, L12, L13, L14, L15, L39, L40, L41, L42, L44, L45, L46, L47. The search notes filed on 2022-10-26 differ from those filed on 2021-11-26 — a further search was run between them. Full log: §12a.
What the Office already had	3 reference(s) cited by the examiner and 8 by the applicant; 32 documents with their foreign families. None is reported as a find here. List: §12b.
Litigation and PTAB	3 suit(s) on this patent in our litigation watch, against 3 defendant(s); no PTAB proceedings. Counts only. The watch reads complaints as they are filed, so a suit from before it started may not appear.

What this page leaves out: the applicant's arguments and amendments, art raised in other suits and at PTAB, the cases, counsel, motions and rulings, and the plaintiff's own reading of its claims. Those are the **Case Brief** (\$199, 2 business days). A paid sweep's fee is credited in full against a Case Brief or a signed search on the same patent within 60 days of payment; the date is in your delivery email.

3 What the claim requires

No plain-words reading is printed: the automated reading quoted a phrase that is not in the claim, so it was set aside rather than printed. The elements below are the claim as written.

Claim 1, element by element:

#	Element
E1	A computing apparatus implemented with a network hypervisor implementing software defined network (SDN)-based network virtualization, the computing apparatus comprising:
E2	a statistics virtualization module configured to receive a request for individual physical resource consumption statistics for a first virtual network of multiple separately managed virtual networks;
E3	determine whether the at least one physical resource is shared between the first virtual network and at least one other of the multiple separately managed virtual networks, and isolatedly provide individual physical resource consumption statistics to the first virtual network based on the determination whether the at least one physical resource is shared;
E4	wherein the statistics virtualization module provides respective virtual flow entry statistics to the first virtual network, including: provision of virtual flow entry statistics for the first virtual network, provision of virtual port statistics based on the at least one physical resource for the first virtual network.

4 References read in full

Reference	Title	First published	Role	Prior-art status
US9893983B2	Network virtualization operations using a scalable statistics collection framework	2018-02-13	load-bearing	prior art — inventors differ from the target — third-party art.
US9825832B2	Using an SDN controller for contemporaneous measurement of physical and virtualized environments	2017-11-21	supporting	prior art — inventors differ from the target — third-party art.
US10218618B2	Method and apparatus for processing operation request in storage system	2019-02-26	supporting	prior art — inventors differ from the target — third-party art.
US8976669B2	Switch fabric end-to-end congestion avoidance mechanism	2015-03-10	supporting	prior art — inventors differ from the target — third-party art.
US20220407791A1	Network performance detection method and apparatus, and network device	2022-12-22	supporting	prior art via its own priority claim — check — inventors differ from the target — third-party art.

Candidate pool: 543 pre-cutoff documents matched at least one element query (exclusion set applied; 322 post-cutoff matches discarded). Top by element coverage: US9893983B2 [E2,E3,E4] · US10069734B1 [E2,E3,E4] · US9521053B1 [E2,E3,E4] · US8108511B2 [E2,E3,E4] · US9369352B1 [E2,E3,E4] · US7532583B2 [E2,E3,E4] · US7817578B2 [E2,E3,E4] · US10193823B2 [E2,E3,E4]

5 Coverage matrix

Element	US9893983B2	US9825832B2	US10218618B2	US8976669B2	US20220407791A1	Coverage
E1 A computing apparatus implemented with a network hypervisor implementing software defined network (SDN)-based network virtualization, the computing apparatus comprising:	explicit	explicit	<i>near-miss</i>	—	—	explicit

Element	US9893983B2	US9825832B2	US10218618B2	US8976669B2	US20220407791A1	Coverage
E2	explicit	—	—	—	—	explicit
a statistics						
virtualization						
module						
configured to						
receive a						
request for						
individual						
physical						
resource						
consumption						
statistics for a						
first virtual						
network of						
multiple						
separately						
managed						
virtual						
networks;						

Element	US9893983B2	US9825832B2	US10218618B2	US8976669B2	US20220407791A1	Coverage
E3	<i>near-miss</i>	—	—	—	—	none
determine whether the at least one physical resource is shared between the first virtual network and at least one other of the multiple separately managed virtual networks, and isolatedly provide individual physical resource consumption statistics to the first virtual network based on the determination whether the at least one physical resource is shared;						

Element	US9893983B2	US9825832B2	US10218618B2	US8976669B2	US20220407791A1	Coverage
E4 wherein the statistics virtualization module provides respective virtual flow entry statistics to the first virtual network, including: provision of virtual flow entry statistics for the first virtual network, provision of virtual port statistics based on the at least one physical resource for the first virtual network.	explicit	—	<i>near-miss</i>	—	—	explicit

explicit = disclosed in terms at the cited location · inherent = only by necessary implication (shown, not counted as coverage) · near-miss = a passage on the point whose direction, cardinality or a sub-requirement does not match · — = nothing located. Only same-direction explicit disclosures close an element.

6 Claim chart — not included at this tier

Withheld at this tier: the element-by-element claim chart with verbatim quotations and the signed statement (§11). Both are supplied by the examiner-assisted search and by the focused and full searches, to which this run's fee is credited in full within 60 days — the four tiers side by side: <https://examinersearch.com/order>.

What a signed Focused search delivers: every independent claim charted with each limitation printed in full and split into its components; every component shown by a verbatim quotation with its exhibit page and a plain-language note saying what it shows; a primary combination of at most four references for each claim, with a factual statement of what each shows and the weakest element; coverage computed component by component; stamped exhibits of every document relied on; an online version with each claim component colour-coded through the quotations; signed by the searcher.

7 The residual

Not explicitly disclosed by the references read: **E3**.

Closest references read in full, and what each lacks

Reference	Discloses	Why it does not carry the claim alone	What would complete it
US9893983B2 Network virtualization operations using a scalable statistics collection framework	E1, E2, E4	no disclosure located for E3 in the description read	a second reference teaching E3 in the same architecture (computing apparatus implemented with a network hypervisor implementing software defined ne) would complete the combination
US9825832B2 Using an SDN controller for contemporaneous measurement of physical and virtualized environments	E1	no disclosure located for E2, E3, E4 in the description read	a second reference teaching E2, E3, E4 in the same architecture (computing apparatus implemented with a network hypervisor implementing software defined ne) would complete the combination
US10218618B2 Method and apparatus for processing operation request in storage system	—	no disclosure located for E1, E2, E3, E4 in the description read	does not bear on this claim; listed because it ranked in the candidate pool
US8976669B2 Switch fabric end-to-end congestion avoidance mechanism	—	no disclosure located for E1, E2, E3, E4 in the description read	does not bear on this claim; listed because it ranked in the candidate pool
US20220407791A1 Network performance detection method and apparatus, and network device	—	no disclosure located for E1, E2, E3, E4 in the description read	does not bear on this claim; listed because it ranked in the candidate pool

What a deeper search would read next

This is a **preliminary search**: it read the 5 documents above in full and stopped there — that is the whole of this tier, not an unfinished job. 541 further pre-cutoff documents matched the element queries (405 on two or more elements) and are ranked below, from the search and not from a reading.

What the next search up the ladder adds is not a reformatting of the pages above. It is three things this tier does not contain:

- **A searcher reads the references against the claim.** The coverage above (§5) is a model's reading of the description text, and §10 says so. A read can overturn them in either direction — a near-miss that is in fact explicit is the finding that decides a case, and only a person reading the original document can call it.
- **The gaps are searched by hand.** §7 names what is missing and what would complete it, and then stops. The next tier *goes and looks* — the residual worked as a search of its own, by someone who knows where the art hides when the automated searches come back thin. That is where a case is usually won or genuinely closed.
- **It is charted and signed.** Every element against the best reference, verbatim pinpoint citations, in the form contentions and a petition require — with a signed statement of what was searched and what was *not* found. The signature is the part a filing can rest on; nothing automated can produce it.

The tiers: the **examiner-assisted search** (\$499 (standard \$999), this claim), the **focused search** (\$899 (standard \$2,500), every independent claim, plus non-patent and foreign literature with translations of the passages relied on) or the **full search** (\$1,500 (standard \$5,000), all asserted claims including dependents, alternative grounds charted, and exclusion screening against the prosecution record). This run's fee is credited in full against any of them on the same patent within 60 days. Launch prices, valid through December 31, 2026. Side by side: <https://examinersearch.com/order>.

Reference	Elements matched in search (not yet read)	Date
US10069734B1 Congestion avoidance in multipath routed flows using virtual output queue statistics	E2, E3, E4	2018-09-04
US9521053B1 Providing diagnostic metrics for virtual connections over physical connections into a provider network	E2, E3, E4	2016-12-13
US8108511B2 Abstraction of multiple aggregated physical counters into a virtual counter	E2, E3, E4	2012-01-31
US9369352B1 Method of capturing server and operating system metrics for virtual to physical topology reporting	E2, E3, E4	2016-06-14
US7532583B2 Method for integrating downstream performance and resource usage statistics into load balancing weights	E2, E3, E4	2009-05-12
US7817578B2 Method for integrating downstream performance and resource usage statistics into load balancing weights	E2, E3, E4	2010-10-19
US10193823B2 Rich resource management incorporating usage statistics for fairness	E2, E3, E4	2019-01-29
US9686152B2 Techniques for tracking resource usage statistics per transaction across multiple layers of protocols	E2, E3, E4	2017-06-20

8 What was not found, and how hard we looked

Source	Status
US patents and published applications (full text)	searched
Full reading of the closest references	searched

searched = searched and returned candidates · searched, nothing before the cutoff = searched, no document dated before the cutoff.

Classifications searched, and how large each is

CPC group	Documents	Note
H04L12	—	count unavailable — the full-text engine did not answer; the class was still searched by the element queries above
H04L41	—	count unavailable — the full-text engine did not answer; the class was still searched by the element queries above
H04L43	—	count unavailable — the full-text engine did not answer; the class was still searched by the element queries above
H04L45	—	count unavailable — the full-text engine did not answer; the class was still searched by the element queries above
H04L47	—	count unavailable — the full-text engine did not answer; the class was still searched by the element queries above

The patent's own CPC main groups, each searched.

Where the effort went

Element	Queries	Largest set	Smallest non-zero	Zeros	Engines
E1	17	1,834,559	11	0	USPTO Patent Public Search
E2	1	11,187	11,187	0	USPTO Patent Public Search
E3	51	4,764,615	1	3	USPTO Patent Public Search
E4	1	25,394	25,394	0	USPTO Patent Public Search
several elements together	178	3,321,985	1	3	USPTO Patent Public Search

6 queries returned zero; every zero result was checked before it was relied on.

For the elements not found:

- **E3:** 51 queries, largest set 4,764,615, 3 zeros; searched again on this element alone.

9 Search record

251 queries were recorded in this run, by source below. The examiner's own search, for comparison, is in §12. Hit counts are each source's own totals before the date cap and the exclusion of art already of record. The full query log is kept and is available with a signed search.

Source	Queries	Hits
USPTO Patent Public Search	250	41,768,638

10 Limitations

- Automated and unsigned. This is not an opinion of validity or invalidity and creates no attorney–client relationship.
- The cutoff is the date confirmed on the order form. If the patent is entitled to a different date, every date-capped result above shifts with it.
- Element membership from a search engine is approximate; only the references in §4 were read in full, and only their §5 cells are verified readings.
- Inherent and near-miss cells are shown so the reader can see what was located; neither closes an element.
- Google Patents similarity is opportunistic and was available during this run.

11 Review

READ BEFORE RELEASE BY Michael W. Smith, former USPTO patent examiner	RELEASED September 26, 2026 at 2:26 AM CT	ATTESTED Reviewed and released
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This is an attestation that the report was read before it went out, not a signature. The read checks the coverage of each element and every reference cited against the documents. A **signed statement** of what was searched and what was not found is the examiner-assisted search (§6), and is deliberately not produced by an automated tier.

Where each element appears in each reference, with the passages quoted verbatim, is the claim chart: it is supplied by the examiner-assisted search and the focused and full searches (§6).

12 The examiner's record

The material the free tools on examinersearch.com give for this patent, read for this run: where the Office looked, what it already had, and the words the inventors used.

12a • The examiner's search

Read from the search notes in the file wrapper — examiner Kyung H Shin, art unit 2452. Classes searched: H04L 43/062, 45/56, 12/4641, 41/142, 046, 47/2483, 2441, H04L 45/02, 47/829, 762, 15, 822, 70, 781, 808, H04L 43/065, H04L43/065, H04L47/70, 15, 781, 822, 808, 829, 762, H04L45/02, H04L43/20, 062, 45/56, 41/40, 142, 046H04L47/2441, 2483, H04L12/4641. Databases: US-PGPUB, USPAT, USOCR, FPRS, EPO, JPO, DERWENT, IBM_TDB, FIT.

- The examination rests on 44 queries across 9 databases (US-PGPUB, USPAT, USOCR, FPRS, EPO, JPO, DERWENT, IBM_TDB, FIT).
- 15 of those queries returned zero hits: L9, L10, L11, L12, L13, L14, L15, L39, L40, L41, L42, L44, L45, L46, L47.
- The search notes filed on 2022-10-26 differ from those filed on 2021-11-26 — a further search was run between them.

Session	Line	Query as the examiner ran it	Hits
2021-11-20	L1	(virtual near8 flow near8 statistics) (virtual near8 port near8 statistics) @ad<"20200428"	25
2021-11-20	L5	(virtual near8 flow near8 statistics) (virtual near8 port near8 statistics) (physical n ear8 statistics) @ad<"20200428"	6
2021-11-20	L6	(virtual near8 flow near8 statistics) (virtual near8 port) @ad<"20200428"	71
2021-11-20	L7	(virtual near8 flow near8 statistics) (virtual near8 port near8 statistics) (physical n ear8 cache) @ad<"20200428"	8
2021-11-20	L8	(virtual near8 flow near8 statistics) (virtual near8 port near8 statistics) (physical n ear8 cache) @ad<"20200428"	8
2021-11-20	L9	(virtual near8 flow near8 statistics) (request near8 time near2 period) (calculat\$8 near8 mean) @ad<"20200428"	0
2021-11-20	L10	(virtual near8 flow near8 statistics) (calculat\$8 near8 mean near8 variance) @ad<"20200428"	0
2021-11-20	L11	(virtual near8 flow near8 statistics) (virtual near8 port near8 statistics) (request ne ar8 interval) (mean near8 variance) @ad<"20200428"	0
2021-11-20	L12	(virtual near8 flow near8 statistics) (virtual near8 port) (request near8 interval) (me an near8 variance) @ad<"20200428"	0

Session	Line	Query as the examiner ran it	Hits
2021-11-20	L13	(virtual near8 flow near8 statistics) (virtual near8 port) (request near8 time near2 period) (mean near8 variance) @ad<"20200428"	0
2021-11-20	L14	(virtual near8 flow near8 statistics) (virtual near8 port) (request near8 time near2 period) (mean variance) @ad<"20200428"	0
2021-11-20	L15	(virtual near8 flow near8 statistics) (request near8 time near2 period) (mean variance) @ad<"20200428"	0
2021-11-20	L16	(virtual near8 flow near8 statistics) (request near8 time near2 period) (calculat\$8 near8 mean)	1
2021-11-20	L17	(virtual near8 flow near8 statistics) (request near8 time near2 period) (calculat\$8 near8 mean)	1
2021-11-20	L18	(virtual near8 flow near8 statistics) (request near8 time near2 period) (calculat\$8 near8 mean)	1
2021-11-20	L19	(virtual near8 flow near8 statistics) (virtual near8 port) (request near8 time near2 period) (mean near8 variance)	1
2021-11-20	L20	(virtual near8 flow near8 statistics) (virtual near8 port near8 statistics) @ad<"20200428"	13
2021-11-20	L21	L20 AND ((H04L41/142 OR H04L47/2483 OR H04L12/4641 OR H04L41/046 OR H04L43/062 OR H04L45/56 OR H04L47/2441).CPC.)	4
2021-11-20	L22	(network near8 flow near8 statistics) (calculat\$8 near8 mean near8 variance) @ad<"20200428"	5
2021-11-20	L23	L22 AND ((H04L45/02 OR H04L47/15 OR H04L47/70 OR H04L47/762 OR H04L47/781 OR H04L47/808 OR H04L47/822 OR H04L47/829).CPC.)	5
2021-11-20	L24	(virtual near8 flow near8 statistics) (virtual near8 port near8 statistics) (physical near8 statistics) @ad<"20200428"	11
2021-11-20	L25	L24 AND ((H04L43/065).CPC.)	1
2021-11-20	L26	(((((("Korea") near3 ("University") near3 ("Research") near3 ("and") near3 ("Business") near3 ("Foundation")))).AS,AANM.	668
2021-11-20	L27	(((((("YANG") near3 ("Gyeongsik")))).INV.	3
2021-11-20	L28	(((((("KANG") near3 ("Minkoo")))).INV.	26
2021-11-20	L29	(((((("YOO") near3 ("Hyuck")))).INV.	29
2022-10-17	L30	(virtual near8 flow near8 statistics) (virtual near8 port near8 statistics)	59
2022-10-17	L31	(virtual near8 flow near8 statistics) (virtual near8 port near8 statistics) @ad<"20200428"	52
2022-10-17	L32	(network near8 flow near8 statistics) (calculat\$8 near8 mean near8 variance) @ad<"20200428"	39
2022-10-17	L33	L31 (H04L43/065).cpc.	1
2022-10-17	L34	L32 (H04L47/70;H04L47/15;H04L47/781;H04L47/822;H04L45/02;H04L47/808;H04L47/829;H04L47/762).cpc.	12
2022-10-17	L35	(virtual near8 flow near8 statistics) (virtual near8 port near8 statistics) (physical near8 statistics) @ad<"20200428"	15
2022-10-17	L36	(virtual near8 flow near8 statistics) (virtual near8 port near8 statistics) @ad<"20200428"	52

Session	Line	Query as the examiner ran it	Hits
2022-10-17	L37	L36 (H04L43/20;H04L45/56;H04L43/062;H04L41/40;H04L47/2441;H04L12/4641;H04L47/2483;H04L41/142;H04L41/046).cpc.	16
2022-10-17	L38	((software near8 defined near8 network) (virtual near8 flow near8 port) (virtualization near8 module)).clm.	4
2022-10-17	L39	((software near8 defined near8 network) (virtual near8 flow near8 port) (isolat\$8 near8 consumption near8 statistics)).clm.	0
2022-10-17	L40	((software near8 defined near8 network) (virtual near8 flow near8 port) (physical near8 statistics near8 consumption)).clm.	0
2022-10-17	L41	((software near8 defined near8 network) (physical near8 resource near8 shared) (separately near8 managed)).clm.	0
2022-10-17	L42	((software near8 defined near8 network) ((virtual near8 flow) (virtual near8 port)) (separately near8 managed)).clm.	0
2022-10-17	L43	L38 ((H04L12/4675 OR H04L41/142 OR H04L43/026 OR H04L43/062 OR H04L43/14 OR H04L12/4641 OR H04L43/04 OR H04L43/20 OR H04L43/12).cpc.)	3
2022-10-17	L44	L39 ((H04L12/4675 OR H04L41/142 OR H04L43/026 OR H04L43/062 OR H04L43/14 OR H04L12/4641 OR H04L43/04 OR H04L43/20 OR H04L43/12).cpc.)	0
2022-10-17	L45	L40 ((H04L12/4675 OR H04L41/142 OR H04L43/026 OR H04L43/062 OR H04L43/14 OR H04L12/4641 OR H04L43/04 OR H04L43/20 OR H04L43/12).cpc.)	0
2022-10-17	L46	L41 ((H04L12/4675 OR H04L41/142 OR H04L43/026 OR H04L43/062 OR H04L43/14 OR H04L12/4641 OR H04L43/04 OR H04L43/20 OR H04L43/12).cpc.)	0
2022-10-17	L47	L42 ((H04L12/4675 OR H04L41/142 OR H04L43/026 OR H04L43/062 OR H04L43/14 OR H04L12/4641 OR H04L43/04 OR H04L43/20 OR H04L43/12).cpc.)	0

12b • References of record

3 cited by the examiner, 8 by the applicant; with their foreign family members, 32 documents were already before the Office. None of them is reported as a find in §4 — the search excluded all of them by construction.

Reference	Of record as	Date	Title
KR101485161B1	Cited by the applicant	2015-01-22	System and method for providing real time streaming service
KR101676570B1	Cited by the applicant	2016-11-15	Method and system for providing virtual data center
KR20140051776A	Cited by the applicant	2014-05-02	Apparatus for network monitoring based on flow and network monitoring system
KR20160041631A	Cited by the applicant	2016-04-18	Apparatus and method for quality of service aware routing control
KR20160062688A	Cited by the applicant	2016-06-02	Overlay network based on the original packet flow mapping apparatus and method therefor
KR20160107920A	Cited by the applicant	2016-09-19	Autonomous control method in software defined network
KR20180122513A	Cited by the applicant	2018-11-13	Method and framework for traffic engineering in network hypervisor of sdn-based network virtualization platform

Reference	Of record as	Date	Title
KR20190063231A	Cited by the applicant	2019-06-07	Data center management system based on sdn, and method thereof
US20060250959A1	Cited by the examiner	2006-11-09	Quality of service network and method
US20180287905A1	Cited by the examiner	2018-10-04	Session-based traffic statistics logging for virtual routers
US9935854B2	Cited by the examiner	2018-04-03	Infrastructure performance monitoring

Foreign family members of those references (19) — they do not appear on the patent's face, and a reference the Office already had through its US member is not new art: ATE466436T1, CN108696402A, CN108696402B, DE602006013947D1, EP1851921A1, EP1851921B1, EP3382959A2, EP3382959A3, EP3382959B1, IL167059A, JP2008532358A, KR101660849B1, KR101991852B1, KR102011021B1, KR102024545B1, US10291497B2, US20160087861A1, US7920472B2, WO2006090369A1.

The patent's own family (2): KR102322454B1, US20210336818A1.

12c · The patent's own words

Words the specification uses that the independent claims do not, most frequent first — the inventors' vocabulary rather than the attorney's, and the vocabulary the art is usually written in. The patent sweep searches with this list.

time (42), interval (38), control (37), controller (28), tenants (24), topology (22), channel (20), aggregated (19), connections (18), period (18), sdn-based (13), average (12), distributed (11), estimation (11), accuracy (10), plane (9), algorithm (9), fat-tree (9), linear (8), messages (8), packet (8), input (8), mapping (7), management (6), traffic (6), edge (6), identifier (6), vfs (5), reply (5), overhead (5), monitors (4), transmitting (4), periodically (4), response (4), installation (4), retrieves (4), execute (4), accurate (3), confidence (3), sending (3)

Automated search record. Not a validity opinion. · Examiner Search · Patent invalidity and prior-art search · michael@examinersearch.com · 469-213-1254 · examinersearch.com