Tanenbaum等人所著的“**Computer Networks**”第5版和第6版之间的异同点

相同之处：

1）两个版本都是9章内容，每一章的标题是一样的

|  |  |
| --- | --- |
| **Chapter 1 Introduction** | |
| 5th Edition | 6th Edition |
| **9**个小节 | **11**个小节 |
| 1.1 Uses of Computer Networks | 1.1 Uses of Computer Networks (以使用计算机网络的目的分5个方面：获取信息；个人之间通信；电子商务；娱乐；物联网。)  1.2 Types of Computer Networks (宽带网络；移动和无线网络；内容分发网络；Transit Networks；企业网络) |
| 1.2 Network Hardware | 1.3 Network Technology, from Local to Global |
| 1.3 Network Software | 1.5 Network Protocols |
| 1.4 Reference Models | 1.6 Reference Models (顺序有点变动，先讲对OSI参考模型和TCP/IP参考模型一些思考，然后再提教材所用的五层模型) |
| 1.5 Example Networks | 1.4 Examples of Networks (介绍目前最常见的三种网络：the Internet；移动网络；无线网络 (WiFi)) |
| 1.6 Networks Standardization | 1.7 Standardization (增加“标准化和开源”一小节) |
|  | 1.8 Policy, Legal, and Social Issues (增加增，有关网络中立，安全，隐私等话题。) |
| 1.7 Metric Units | 1.9 Metric Units |
| 1.8 Outline of the rest of the book | 1.10 Outline of the rest of the book |
| 1.9 Summary | 1.11 Summary |

|  |  |
| --- | --- |
| **Chapter 2 The Physical Layer** | |
| 5th Edition | 6th Edition |
| **9**个小节 | **11**个小节 |
| 2.1 The Theoretical Basis for Data Communication | 2.3 Using the Spectrum for Transmission |
| 2.5 Digital Modulation and Multiplexing | 2.4 From Waveforms to Bits |
|  |  |
| 2.2 Guided Transmission Media | 2.1 Guided Transmission Media |
| 2.3 Wireless Transmission | 2.2 Wireless Transmission |
| 2.4 Communication Satellites | 2.8 Communication Satellites |
|  |  |
| 2.6 The PSTN | 2.5 The PSTN |
| 2.7 The Mobile Telephone System | 2.6 Cell Networks (增加了4G和5G 内容) |
| 2.8 Cable Television | 2.7 Cable Networks |
|  | 2.9 Comparing Different Access Networks |
|  | 2.10 Policy at the Physical Layer |
| 2.9 Summary | 2.11 Summary |

|  |  |
| --- | --- |
| **Chapter 3 The Data Link Layer** | |
| 5th Edition | 6th Edition |
| **6**个小节 | **6**个小节 |
| 3.1 Data Link Layer Design Issues | 3.1 Data Link Layer Design Issues |
| 3.2 Error Detection and Correction | 3.2 Error Detection and Correction |
| 3.3 Elementary Data Link Protocols | 3.3 Elementary Data Link Protocols (以简化设计假设开始，然后给出Simplex Link-Layer Protocols) |
| 3.4 Sliding Window Protocols | 3.4 Improving Efficiency (设计目标，然后给出双工，滑动窗口协议例子) |
| 3.5 Example Data Link Protocols | 3.5 Data Link Protocols in Practice (除了原先SONET，ADSL之外，还给出基于同轴电缆Cable的DOCSIS) |
| 3.6 Summary | 3.6 Summary |

|  |  |
| --- | --- |
| **Chapter 4 The Medium Access Control Sublayer** | |
| 5th Edition | 6th Edition |
| **9**个小节 | **8**个小节 |
| 4.1 The Channel Allocation Problem | 4.1 The Channel Allocation Problem |
| 4.2 Multiple Access Protocols | 4.2 Multiple Access Protocols |
| 4.3 Ethernet | 4.3 Ethernet (增加一节有关40Gigabit到100 Gigabit以太网) |
| 4.4 Wireless LANs | 4.4 Wireless LANs |
| 4.5 Broadband Wireless |  |
| 4.6 Bluetooth | 4.5 Bluetooth |
| 4.7 RFID |  |
|  | 4.6 DOCSIS (Cable) |
| 4.8 Data Link Layer Switching | 4.7 Data Link Layer Switching |
| 4.9 Summary | 4.8 Summary |
| **Chapter 5 The Network Layer** | |
| 5th Edition | 6th Edition |
| **7**个小节 | **9**个小节 |
| 5.1 Network Layer Design Issues | 5.1 Network Layer Design Issues |
| 5.2 Routing Algorithms | 5.2 Routing Algorithms in a Single Network (内容安排前9 subsections一样，去掉了原先5.2.10 Routing for Mobile Hosts 和5.2.11 Routing in Ad Hoc Networks) |
| 5.3 Congestion Control Algorithms | 5.3 Traffic Management at the Network Layer |
| 5.4 Quality of Service | 5.4 Quality of Service and Application QOE (Title有点差异，但是内容一致) |
| 5.5 Internetworking | 5.5 Internetworking |
| 5.6 The Network Layer in the Internet | 5.6 Software-Defined Networking |
| 5.7 Summary | 5.7 The Network Layer in the Internet |
|  | 5.8 Policy at the Network Layer |
|  | 5.9 Summary |

|  |  |
| --- | --- |
| **Chapter 6 The Transport Layer** | |
| 5th Edition | 6th Edition |
| **8**个小节 | **8**个小节 |
| 6.1 The Transport Service | 6.1 The Transport Service |
| 6.2 Elements of Transport Protocols | 6.2 Elements of Transport Protocols |
| 6.3 Congestion Control | 6.3 Congestion Control |
| 6.4 The Internet Transport Protocols: UDP | 6.4 The Internet Transport Protocols: UDP |
| 6.5 The Internet Transport Protocols: TCP | 6.5 The Internet Transport Protocols: TCP |
| 6.6 Performance Issues | 6.6 Transport protocols and Congestion Control (这节中把QUIC: Quick UDP, BBR: Congestion Control based on Bottleneck Bandwidth，以及The Future of TCP专门拎出来讲) |
| 6.7 Delay-Tolerant Networking (在新版中这一节没有了) | 6.7 Performance Issues |
| 6.8 Summary | 6.8 Summary |

|  |  |
| --- | --- |
| **Chapter 7 The Application Layer** | |
| 5th Edition | 6th Edition |
| **6**个小节 | **6**个小节 |
| 7.1 DNS (3 sub-sections) | 7.1 DNS (8 sub-sections) |
| 7.2 Email | 7.2 Email |
| 7.3 The WWW | 7.3 The WWW |
| 7.4 Streaming Audio and Video | 7.4 Streaming Audio and Video |
| 7.5 Content Delivery | 7.5 Content Delivery |
| 7.6 Summary | 7.6 Summary |

|  |  |
| --- | --- |
| **Chapter 8 Network Security** | |
| 5th Edition | 6th Edition |
| **11**个小节 | **14**个小节 (次序安排有点不一样) |
|  | 8.1 Fundamentals of Network Security |
|  | 8.2 The Core Ingredients of an Attack |
|  | 8.3 Firewalls and Intrusion Detection Systems |
| 8.1 Cryptography | 8.4 Cryptography |
| 8.2 Symmetric-Key Algorithms | 8.5 Symmetric-Key Algorithms |
| 8.3 Public-Key Algorithms | 8.6 Public-Key Algorithms |
| 8.4 Digital Signatures | 8.7 Digital Signatures |
| 8.5 Management of Public Keys | 8.8 Management of Public Keys |
| 8.6 Communication Security | 8.9Authetication Protocols |
| 8.7Authetication Protocols | 8.10 Communication Security |
| 8.8 Email Security | 8.11 Email Security |
| 8.9 Web Security | 8.12 Web Security |
| 8.10 Social Issues | 8.13 Social Issues |
| 8.11 Summary | 8.14 Summary |