.NET SOCKET

Сергеев Николай КБ-401

Со́кеты (англ. *socket* — углубление, гнездо, разъём) — программный интерфейс для обеспечения обмена данными между процессами.

Сокет Беркли

- Серверные
- Клиентские

System.Net

System.Net.Sockets

- Windows Sockets
- Дуплексное взаимодействие

Socket

- Синхронная передача
- Асинхронная передача

Конструктор

```
Socket sock = new
Socket(AddressFamily.InterNetwork,
                    SocketType.Stream,
                    ProtocolType.Tcp);
```

Асинхронные методы

- ConnectAsync
- SendAsync
- ReceiveAsync
- Shutdown
- Close

SocketAsyncEventArgs

```
…
SocketAsyncEventArgs socketEventArg = new SocketAsyncEventArgs();

DnsEndPoint hostEntry = new DnsEndPoint("http://www.google.com", 80);

socketEventArg.Completed += new
    EventHandler<SocketAsyncEventArgs>(SocketEventArg_Completed);

socketEventArg.RemoteEndPoint = hostEntry;

socketEventArg.UserToken = sock;

sock.ConnectAsync(socketEventArg);
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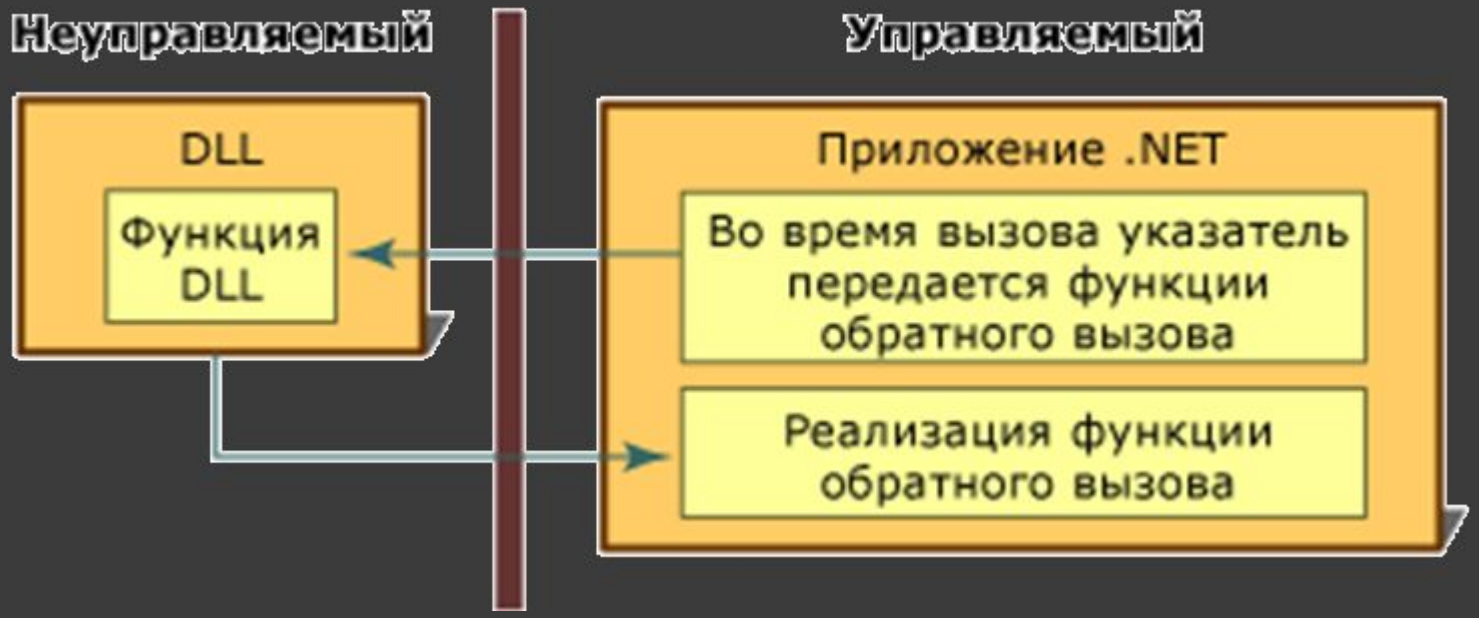
Функция обратного вызова



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```
static void SocketEventArg_Completed(object sender,
SocketAsyncEventArgs e) {
    switch (e.LastOperation)
        {
            case SocketAsyncOperation.Connect:
                ProcessConnect(e);
                break;
             case SocketAsyncOperation.Receive:
                ProcessReceive(e);
                break;
            case SocketAsyncOperation.Send:
                ProcessSend(e);
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            default: throw new Exception("Invalid operation completed"); }
}
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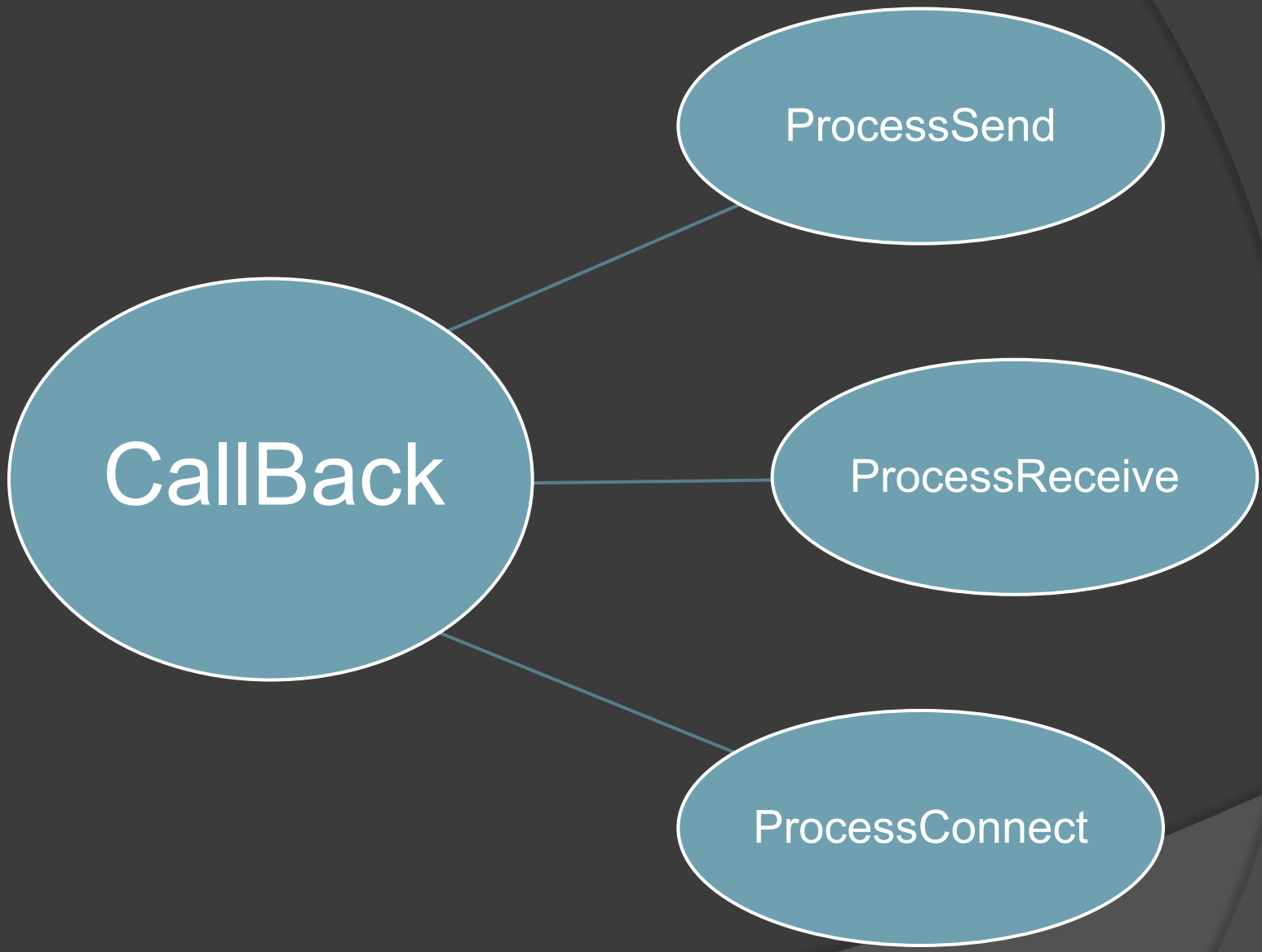
CallBack
ProcessSend
ProcessReceive
ProcessConnect

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}
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```
private static void ProcessConnect(SocketAsyncEventArgs e)
{
    …
    byte[] buffer = Encoding.UTF8.GetBytes("Hello World");
    e.SetBuffer(buffer, 0, buffer.Length);
    Socket sock = e.UserToken as Socket;
    bool willRaiseEvent = sock.SendAsync(e);
    if (!willRaiseEvent)
    {
        ProcessSend(e);
    }
    …
}
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private static void ProcessSend(SocketAsyncEventArgs e)
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    Socket sock = e.UserToken as Socket;
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                break;
            default: throw new Exception("Invalid operation completed"); }
}
```

```
private static void ProcessReceive(SocketAsyncEventArgs e)
{
    …
    Socket sock = e.UserToken as Socket;
    sock.Shutdown(SocketShutdown.Send);
    sock.Close();
    …
}
```

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private static void ProcessReceive(SocketAsyncEventArgs e)
{
    …
    Socket sock = e.UserToken as Socket;
    sock.Shutdown(SocketShutdown.Send);
    sock.Close();
    …
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}
```

Этапы выполнения асинхронной операции

1. Выделите SocketAsyncEventArgs
2. Задайте свойства объекта SocketAsyncEventArgs,
3. Вызовите соответствующий метод сокета.
4. Функции обратного вызова сделайте запрос состояния завершения и результатов операций.
5. Повторно используйте объект SocketAsyncEventArgs для другой операции.

СПАСИБО ЗА ВНИМАНИЕ!